

Antiquity

A QUARTERLY REVIEW OF ARCHÆOLOGY



Edited by O. G. S. Crawford, F.S.A.

DECEMBER 1929

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NOTICES

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THE CITY OF LONDON

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GREAT BRITAIN is the only country in the world whose antiquities are systematically marked on the Government maps. Since the 18th century, when the Ordnance Survey was founded, sites and objects of archaeological interest have been regularly shown on the maps produced by the Department. From time to time special publications dealing with Archaeology have been issued. This work is still proceeding; fresh discoveries are constantly being recorded; descriptions of antiquities are corrected in the light of modern research; and an important series of Monographs on archaeological subjects is being published.

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The recording of the state of archaeological knowledge on the national maps has contributed largely to place Great Britain in the pre-eminent position she holds in the study of Field Archaeology. Without the accurate plans of ancient earthworks and other sites which are given on the 25-inch and 6-inch maps, field archaeology would be so difficult that few would be able to make it their hobby. In addition to the Sheets of the regular Series which show antiquities, many maps, books and pamphlets dealing with archaeological subjects have been published by the Ordnance Survey, or by H.M. Stationery Office in co-operation with the Survey. The following are a few of these publications:—

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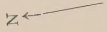
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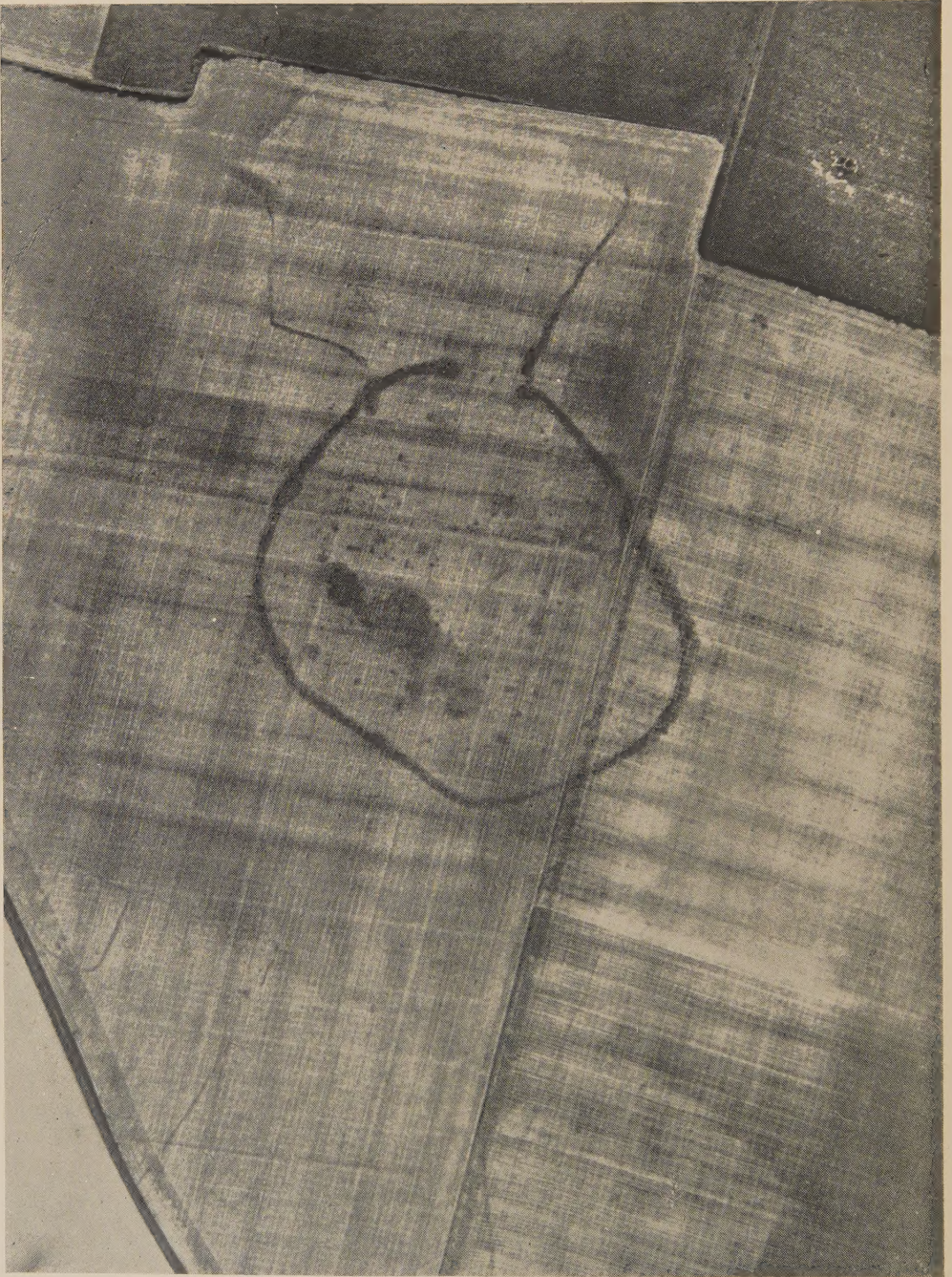
PLATE I



GRASS

BARLEY

OATS



ENCLOSURE NEAR WOODBURY, WILTS: TAKEN BETWEEN 11 AND 12 O'CLOCK, 16 MAY 1929
(R.A.F., OLD SARUM)

SCALE 0 1 2 3 4 500 Ft

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Antiquity

A Quarterly Review of Archæology

VOL. III No. 12

DECEMBER 1929

Editorial Notes

WE have now completed our third year of publication and once more thank our subscribers, especially those who have given us their support from the first number. With this issue is enclosed a renewal form for 1930. We have tried to avoid placing it in the copies sent to those who pay through banks, or who have already paid in advance. The subscription for 1930 is not actually due until next March but the form is enclosed now for mutual convenience ; it is a great help for us to know exactly how we stand at the beginning of the year. In the past we have, in the absence of instructions to the contrary, assumed that all subscribers wish to continue receiving *ANTIQUITY*, and in a few cases this has led to misunderstanding which we wish to avoid in the future.



We would here draw attention to a feature of *ANTIQUITY* of which some of our readers, particularly those who have only recently become such, may not be aware. *ANTIQUITY* has no publisher, in the generally accepted sense of the word. All the arrangements for its distribution are directly controlled by the Editors, who are thus brought into personal touch with every individual subscriber. We value this personal element very highly, and we have no intention of relinquishing it ; though it necessarily involves a large amount of additional work. We know that many of our subscribers also appreciate this relationship, and feel that not only are they getting—to put it crudely—good value for their money, but also that they are supporting a unique venture. We know this from the letters we receive after each issue appears.

ANTIQUITY

These are in themselves a sufficient reward and encouragement, and they help us because they tell us what our readers like best. They also enable us to correct those slips which must occur when a quarterly review is managed by two people in their spare time. For these reasons we adhere to the method of direct publication, which we regard as more human and less mechanical than the usual one. ANTIQUITY could not be run without the friendly cooperation of readers and contributors, and of printers and editors. May we add that our labours would be immeasurably lightened if the former would remember the old saying, *Bis dat qui cito dat*—whether it be manuscripts, illustrations, proofs or SUBSCRIPTIONS !



We make no apology for giving these facts publicity. We think they should be known by our readers as well as by ourselves. Of course we value very much the publicity of reviews, such as the leading article which *The Times* devoted to our last number ; but there is a danger even in the success which, as such reviews prove, ANTIQUITY has achieved. It has already come to be regarded as an established concern, in little or no need of fresh subscribers. While we agree with the former opinion, we dissent from the latter. To conduct it as it should be conducted—with plenty of illustrations and plans—is an expensive business ; and we need the support of every single person who is interested in archaeology. The more subscribers, the more illustrations ! That this is no empty promise may be seen by comparing the number of plates in volumes 1, 2 and 3. The first had 62, the second had 88 and the one now completed has 131 plates. As our circulation has increased, so has the number of our illustrations ; and, as every archaeologist knows, these and plans are absolutely essential to a properly conducted review of this kind.



We could achieve the maximum of efficiency in this respect if only one half of our readers would each obtain for us one new subscriber for 1930 ; or would even give a year's subscription to one of their friends as a Christmas present. We should also be glad to have the names and addresses of interested persons to whom we could send leaflets. We shall shortly be sending out a large number of circulars, but it is difficult to get hold of the right people. In passing we would point out that, in circularizing by post on a large scale from published lists and so forth, it is inevitable that some of our present subscribers may

EDITORIAL NOTES

receive this leaflet, and we ask those to ignore it or (better) to send it to a friend. Many we know have already most generously helped us in this way; we thank them for their help, and assure them that the returns from such methods have always proved more fruitful than those from any other.



Finally, we feel confident that the present number will prove as popular as the last, which to judge from the letters we have received, and the reviews, seems to have pleased everyone. Wiltshire (whose supremacy seemed for a moment to be challenged by Norfolk) is again to the fore, with two of the most remarkable air-photographs ever taken. Africa is represented by several articles. Miss Caton-Thompson's (based on her lecture before the British Association at Johannesburg) is the first illustrated account of her excavations at Zimbabwe. Mr Guy Brunton gives a general summary of his work in Upper Egypt, to which we wish to draw attention. Mr and Mrs Brunton have devoted their time and resources to these most important excavations for several years past. The full extent of this is known only to a few; and we feel that it deserves wider recognition and support on the part of the public. The appeal inserted in the present number will provide sympathizers with an easy means of expressing their sympathy in a practical form. Dr Oscar Reuther is opening up a new world in Iraq, and we deeply appreciate his courtesy in giving our readers the first account of the results. He hopes to resume work at Ctesiphon in 1930-31. Group-Captain Rees (who knows the Syrian desert intimately from two points of view) provides abundant materials for the study of these mysterious walls and enclosures which still baffle us.



'Out of evil cometh good'—two years ago a Royal Commission was appointed to report on National Museums and Galleries, with a view to economy and administrative procedure. The shadow of the axe fell upon our National Collections. That shadow has been replaced by a gleam of hope in the two Reports which have so far been issued. The first report, dealing with structural requirements, has already been reviewed in our columns. The second report concerns itself with congestion of specimens, and a closer touch with modern life. Once more the question of economy fades away into the distance before the pressing needs of the public and students for whom these museums and galleries were intended.

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On the subject of congestion it can be truly said that the past policy of the nation in its Museums and Galleries has been that of the dog in the manger. Not once but many times has this country benefited by loan collections of pictures and specimens from European capitals, without any reciprocity on our side. This must be altered—our pictures must be free to go to Holland, as the Dutch pictures were free to come to us. There must be no splendid isolation in this matter. The principle might well apply to the Provincial Galleries and Museums which can guarantee to provide a suitable temporary home for objects from the national storehouses. The masses of inert matter in the cellars of our National Collections must be called into life and usefulness elsewhere on loan. The talent must no longer be hidden in a napkin.



The crucial demand, however, is to come into touch with modern life. This assumes two distinct functions ; the provision of students' sections, and the wide comprehensive appeal to the layman in art and archaeology—whose path to knowledge must be made easy by lectures, evening opening, isolation of fine specimens and abolition of fees. The general aim must be that of ' Archaeology without Tears ', and the most complete liaison between the specimen and the visitor. Descriptive labels are good, the spoken word is better ; both are needed. This will cost money—and that money must be forthcoming.



Finally, and very rightly, the Report advocates a Museum of Ethnography, and Folk Museums. It is amazing that the British Empire has no central museum in which to display the ethnological specimens which belong to the many and varied races it embraces. The lack of such a museum is a defect in the Empire which calls for immediate remedy. In the sphere of Folk Museums, Great Britain has so far done nothing, while other countries have been steadily engaged on the preservation of their folk-life. What little has been done in this direction in England has been undertaken through the zeal of curators of struggling provincial museums.

To sum up, the difficulty is not so much one of collections, it is the cost of administration and maintenance. Given security for these two items the good work can go forward, and the public will be catered for, both student and layman. And if the Nation leads, perhaps Local Authorities will follow.

The Transjordan Desert

by GROUP-CAPTAIN L. W. B. REES, V.C.

EAST of Amman in Transjordan lies the basalt area called the Harrat er Radjil (the centre is approximately 37 deg. 30 mins. east and 32 deg. 30 mins. north), and this area is archaeologically most interesting. (Fig. 1). The country consists mostly of basalt broken up into blocks of various sizes, with mud-flats scattered in all the hollows. The mud-flats are fed by small watercourses which are generally deeply eroded, and although they are usually dry, water flows in them after heavy rain. Pools of water sometimes lie in the watercourses and on the mud-flats till the commencement of the summer months. Here and there rise small crater-hills, a few hundred feet high, of volcanic formation; and here and there the larger watercourses have eroded the country, leaving many small hills which, when seen from afar, are not unlike the crater-hills.

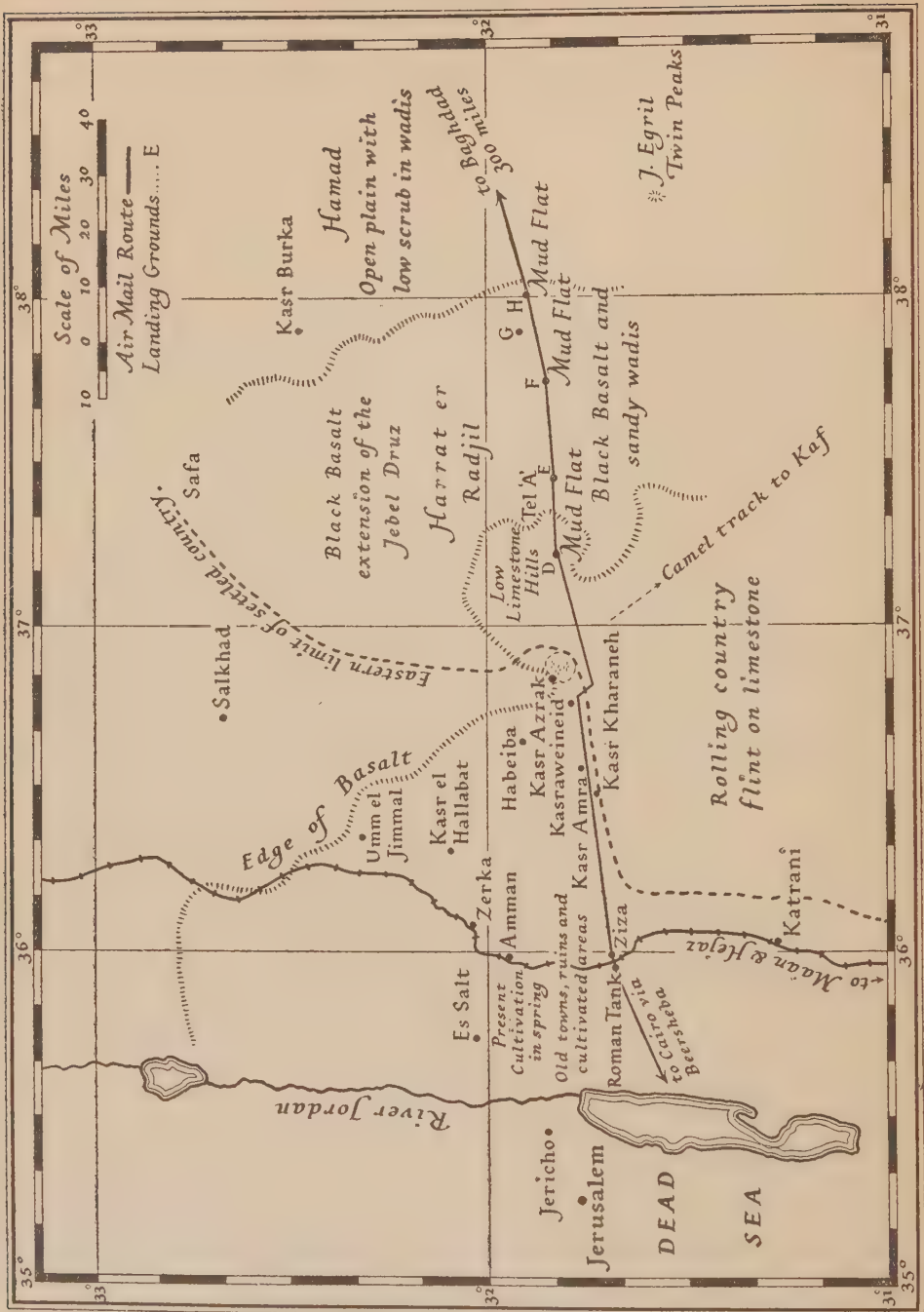
Except for a short period in the spring the whole of this country looks like a dead fire—nothing but cold ashes; but it is probable that it supported a large permanent population in some past period or periods. At least two very distinct periods can easily be distinguished (especially from the air). They are the Safaitic and the 'kite' periods. The Safaitic embraces the period of the building of 'red' villages dating to the beginning of our era, whilst the 'kite' period is very much older, and possibly extended over a very long time.

The descriptions that follow are from the point of view of an aeroplane pilot who claims no knowledge of archaeology, but who has had a certain experience in observing from the air.

SAFAITIC PERIOD

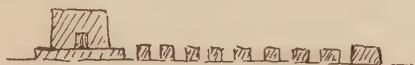
A basalt boulder that was turned over at the beginning of our era has, apparently, weathered to a red colour at the present day. This colour is the impression one gets from the air, and if it has once been seen from the air it can easily be identified on the ground. It is worth noting that similar stones used at the beginning of the Moslem period are very much lighter in colour, and are brownish rather than red.

FIGURE 1



THE TRANSJORDAN DESERT

One comes across the 'red' villages all over the basalt area, sometimes in groups, but more often singly. The village consists of one or more cairn-groups and circles in which cattle could be penned. The cairn-groups are very distinctive and consist of one main cairn with a tail of smaller ones, numbering sometimes three or four and sometimes even as many as fifty. In almost every case the end cairn is of medium size or a cairn in a circle. The circles at the present day are usually partly broken down, and at the proper time of the year Arab tents can frequently be seen filling up the gap.



Inscriptions and drawings are to be found on or near almost every large cairn. Inscriptions are seldom found near the medium sized cairns. They are never near the small cairns, but there are a number on stones lying about the desert which have (at present) no relation to the cairns. The inscriptions are named after those found in the Safa Depression that lies to the north of the Harrat er Radjil, and they date the cairns as belonging to the Roman period. In few of these villages have flints been found, and those found near them have no connexion with them. The villages give one the impression of having been well cleaned and brushed. They are situated in places near which one would expect to find water. They are usually on the edge of a wadi or on top of a small hill; and the inscriptions are more numerous near those pools and mud-flats which now retain water till well on in the Spring. It would seem that the villages were inhabited till the end of the Roman wet period, and that want of water drove the inhabitants elsewhere. There is enough work put into the building of a village to make one think that it was permanently inhabited. At the present time these ruined villages occur in the middle of the basalt area miles from likely watering places, showing that once water must have been plentiful everywhere.

It is very difficult to decide for what purpose the cairns were erected, whether for instance they were erected to guard the Roman roads. I believe it has been suggested that they were guard-houses, and they certainly do lie in great numbers along the Amman-Baghdad track, the Azrak-Kasr Burka track, along the camel track east from the Roman fort at Zerka (11 miles NE of Amman), and east of Bair Wells. Inscriptions can be found near the Roman road to Akaba at the top of the Wadi

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Ithm, on the main road from Katrani to the Roman camp on the edge of the Wadi Ghara (near the edge of the Wadi Sirhan), and at Petra. Those at Petra are on the Roman pillars and inside the 'monuments' and are therefore comparatively recent. They include many well-known Arabic names and words such as Asad (lion) and Na'am (ostrich). These two words are often found near drawings of the objects.

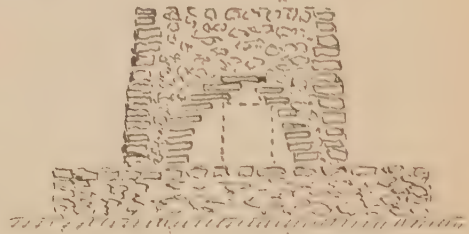
That the cairns were Roman guard-houses is supported by the fact that there is a similar hut, though of a very superior pattern, built of Roman dressed stone, standing beside the Roman road that runs from Kasr Azrak to Salkhad. It is situated a few miles north of the Kasr. This hut is square, and not round as are the cairns.

The large cairns are corbelled huts built on a plinth. (Plate 1). They are all much of the same size and contain a chamber in which one can sit upright. The chamber in plan is perhaps some 8 feet long by 3 or 4 feet broad. The roof is constructed of some six or seven flat stones on which were piled a heap of little stones. There is nothing to show whether they were thatched or turfed to keep out the rain. The smaller cairns are essentially solid, but the large cairn has a proper doorway.

A typical cairn is shown in section. Every cairn examined has had all the small stones thrown off the roof, and at least one of the large roof stones has been lifted.

The use of the tail of cairns is not obvious, but on a small hill south-west of Kasr el Hallabat (15 miles NE of Amman) the large cairn and a part of the tail have been replaced by a Roman dressed stone breastwork wall. It might therefore be that the small cairns were a defence that would allow the guard protection from whichever side the attack came. The guard suddenly attacked in rear could quickly slip round or between the small cairns. This small hill is not according to type as it is covered with flints.

The inscriptions and drawings are typical of those found on or near the cairns and are translated as well as is possible with the aid of the handbook *How to observe in Archaeology* issued by the British Museum. I hope that the translations are fairly correct. (Figs. 2, 3). Lines and dots usually appear in series of seven, well illustrated by the human figure on fig. 2.





mal'ah ibn mahhy ibn am Kharkhalat.

Asad ibn Akal
Lionel son of Wylie.



abis ibn Tsarl

Amalek ibn abis
Prince son of Hardy.

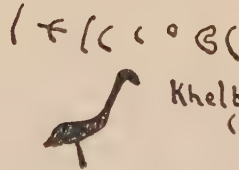


'am ibn Abel



Adam

Tsadd ibn 'amr (or 'amel)



Khelb ibn 'amr
(or 'amel).

Qtbā ibn 'akk ibn auyr

Qtbā ibn 'akk ibn auyr



Abu Yab

FIG. 2. DRAWINGS AND INSCRIPTIONS IN CAIRNS, TRANSJORDAN

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Ad'am, from whence comes the weird camel (in middle of fig. 2), is the district east of Zerka (15 miles NE of Amman) now used as a practice bombing ground.

The artists have shown in many drawings a sense of humour. One camel with a curly tail had his head beaten out and the remainder turned into a gazelle. The words Abu Vab (fig. 2) have been turned into a cheery little fellow and an animal. One artist, having failed to make his drawing look anything like the original, has in desperation written below: 'These are ostriches'. Although not all camels have curly tails there are a sufficient number so drawn to make one wonder how the mistake arose, because in general the drawings of the animals are very true to life. The camels with the elongated humps are exactly as they appear in the mirage when they are a few hundred yards away from one. All the drawings suffer much in transcription.



FIG. 3. CAIRN DRAWINGS, TRANSJORDAN

There is a curious difference in the drawings found in the north and the south of Transjordan, but not enough have been examined to say with certainty if the difference is general. The alphabet changes slightly, different letters being occasionally found, but the chief difference is in the drawings of human beings. The drawings in the south at Jebel Hambra at the head of the Wadi Ithm on the way to Akaba resemble African drawings much more nearly than those of the north.

A swastika appears in an inscription on one of the small hills east of landing ground D near the Baghdad track. In the 'sun parlor' opposite the Tomb of the Roman Soldiers at Petra are dozens of drawings of gazelle and men. In each case the men are drawn thus:—



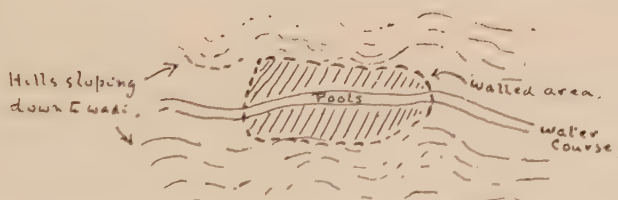
THE TRANSJORDAN DESERT

THE 'KITES'

The remains that are the most interesting, and at the same time give one most furiously to think, are the long walls found all over the Harrat er Radjil, and, as far as can be seen from the air, nowhere else in either Transjordan or Palestine. The word 'kite' is used because one is reminded of a small boy's kite—a more or less hexagonal head with the string and tail springing out from it. Compared with a 'red' village these groups are black. They are very worn and in some places would be quite unnoticed from the ground, were it not that they show so clearly in an air-photograph. Some of the walls are drifted over with sand, some are simply fallen down, some run into mud-flats and reappear again on the other side; few, if any, have survived in anything like their original state. The photographs show how the sites have been built over and rebuilt; and they also suggest how the plan of the kite was evolved.

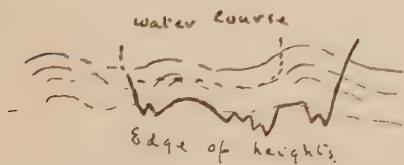
Originally the inhabitants of the area east of Amman lived, I imagine, in the wadis. They still do so, and it is almost beyond comprehension how completely an Arab encampment can hide itself on a desert that appears to be perfectly flat.

North-west of Kasr el Hallabat is an area in the wadi bed that is walled off. The walls cross the wadi at each end of the area thus:—



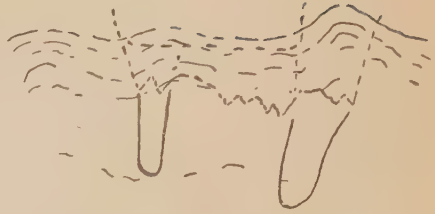
The occupants of the area and other areas similar to it went into the enclosure, together with their cattle, whenever danger threatened. After a time they realized that being in a wadi did not help them much when the enemy stood on the hills outside and threw things at them.

They therefore developed a system of irregular walls which they pushed out towards the edge of the wadi, and constructed a defence shown roughly here. (I should like to date this development to the times before the throwing spear was brought into general use?).



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The new scheme of defence was so successful that the cattle increased considerably, and it became necessary to enlarge the protected area. This was done by throwing out U-shaped arms.



After a time it was found that the cattle could be better protected by driving them up into the 'U' area rather than by allowing them to wander about the enclosed area in the wadi—from which they were liable to be driven off, even if the main raid were repelled. As the cattle still increased the obvious development followed, and the U-walls were built resting on water so that the cattle could quickly be driven into the head when danger threatened.

The plan of a simple U was still not satisfactory because an enemy could attack anywhere along the walls, and it was necessary to detail a guard to stand between the walls. I suspect that very often the guard was unable to resist joining in the fight with the result that, even if victorious, the defenders lost their cattle.

Further developments followed exactly on the lines of modern works. A neck was built below the head of the U; strong points



(a, b, c, d, etc.) were constructed round the head; and the walls were curved so as to make the enemy bunch and lay himself open to a javelin attack in rear. I say javelin attack and not arrow

because the walls are so sited, often in hollows, that had an enemy possessed bows and arrows they could have made the kites quite untenable from the surrounding heights. If the defenders had possessed arrows, the walls would have been straight between strong points, or would have curved outwards and not inwards. The design became as shown below, the long walls often being over 1000 yards in length.

I think that a sufficient number of kites of this period rested on wadis or mud-flats to justify the statement that the open end of the

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U now always rested on a water front; and I think that it can be seen, even from the photographs (plates III and IV), that they were extended as the water receded. Usually the long walls end in a small cairn.

The design was not yet entirely satisfactory, but the type persisted till somebody invented a barb to keep the cattle inside the head when necessary. The barb did away with the necessity for a guard, and the more noise there was the more would the cattle mill, and the less likely would they be to escape through the narrow entrance at the head of the kite.

The finished design therefore became as shown :—



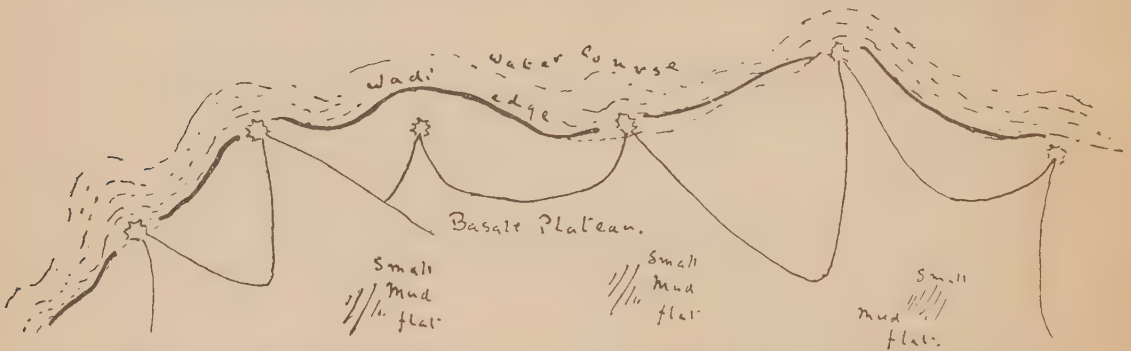
A great many kites of all types are to be found throughout the Harrat er Radjil; and there are three very well defined chains of kites running approximately north-east to south-west, and oriented apparently, to protect the occupants from raids from the direction of Damascus. The chains are some twenty miles or so in length. They are constructed to fit in with the general lie of the country and as far as possible on the wadi edges; but they can be seen on each side of the aeroplane as one flies along the Baghdad track, stretching along and disappearing in the distance. It is difficult to see why certain sections are sited as they were, because now they run through wadis and mud-flats for no apparent reason. A series would appear somewhat like that shown here. The actual series I have in mind is that constructed across the Baghdad track between landing grounds E and F.

The kites are built on the rough basalt, which is now so rough that one has to pick one's way from boulder to boulder; one cannot imagine cattle living on it for any length of time. This makes me suggest that

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the walls were built when there was grazing all over the desert, the kite-walls enclosing good grazing areas. The ground between the walls must in the old days have been covered with some kind of turf, the boulders lying under it. I visualize the whole desert as looking like the present-day country north of Tel Keis (on the Transjordan-Syrian border south of Salkhad), except that there must have been running water and pools all over the area. The whole of the Tel Keis region was cultivated in the Roman period, and looks something like the English Downs. It is covered with cultivation walls. From the top of the Tel one can count over 60 parallel straight walls.

It is difficult to determine the age of the kites. Flints of various ages are found near them, but no connexion with the walls can be



affirmed. One photograph (plate vi) shows that the Roman road and camel-track from Kasr Azrak to the north has broken through a wall, so that the walls must be pre-Roman.

If, as I think, the kites depended on a water front for the defence of one side, some idea of their age can be obtained by comparing the kite south of Kasr Azrak (plate iv) with the Roman reservoir at Ain el Asad a few miles to the south of the Kasr (see ANTIQUITY, III, p. 90, plan). Both works are in the Azrak depression and have relation to the same water level.

The Roman reservoir, fed by a spring within the area, is broken down, but the water sills are some six feet above the present water level. The long Roman wall extending for some miles from the Ain round the south of the depression is now all silted up, but the water level of the depression is several feet below the top of the wall. The soil round the walls is such that at the present day they could

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support only a very small head of water ; and I suggest that the general level of the water in the Azrak depression has sunk some six feet during the last 2000 years. The ends of the kite wall, near the Ain, now rest on the desert about 20 feet above the general water-level of the desert. If the figures are correct the most modern type of kite must have been constructed not later than 2000 B.C. This is what I like to think ; but there are two kites, one built over the other (near Kasr Nemara in the Safa depression north of the Harrat er Radjil) that are in plan suspiciously like that of a Roman camp to which tails have been added. At Kasr Burka, 60 miles north of the Baghdad track at landing ground H, there is a kite of the most modern type of a suspiciously red colour, and it is in such a state of repair that it might quite easily have been in use at the same time as the Roman Kasr. On practically all the sites the kites have been built and rebuilt, with the result that many of the walls run along between the more recent works. Almost all kites are in the basalt area, with the exception of one large group about six miles east of the Amman aerodrome, and another group about ten miles north-east of Zerka (north-east of Amman). Both these groups are built of limestone, and are very nearly invisible from the air except in the morning and evening. The walls exist practically in trace only, all the stones being scattered and very much worn. Stones that at one time could have been described as boulders could now easily be handled.

I have seen no single trace of a kite wall west of the Hedjaz railway, nor south of the approximate latitude of Amman. At one time I had the impression that all kites were designed as defence against an attack from Damascus, but the (middle-aged) kite system that lies on the west bank of the water course, Wadi esh Shem, east of the Jebel Druze and running into the Safa depression, has at some period been completely reversed. Originally these kites stood on the river, but later they were turned so as to rest on a very shallow watercourse, which at the time might well have been a marsh. Many individual kites west of Azrak have also been reversed.

An impression of great age is given by a kite built a few miles north-east of Tel Seyekhin (Azzarak depression) through the head of which a deep little wadi now runs. I can imagine no reason for siting the kite in this way, and think that the wadi has been eroded since the kite was constructed. Mere inspection cannot decide the point.

Against the impression of great age is the fact that, when flying westward from Kasr Burka towards Azrak, the kite area is left behind

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and there follows a considerable area without any kites, although there are red villages in the area. The kites do not appear again till nearing the Wadi esh Shem. On the kiteless area modern Arabs exist for a great period of the year.

There are a number of circles near most of the kites, but it is quite impossible to tell by mere inspection whether kites and circles are associated. Both kites and circles are black, indicating great age.

NOTE BY EDITOR

In the current number of *Syria* (vol. x, pp. 144-163) is an article by Professor Dussaud entitled 'Les Relevés du Capitaine Rees dans le Désert de Syrie'. This should be consulted by all who are interested in the suggestions thrown out by Group-Captain Rees in the above paper. (*Syria* is published by M. Paul Geuthner, 13 rue Jacob, Paris VI; the annual subscription is 120 francs [about one pound sterling], and separate parts are not sold. It is indispensable to students of oriental archaeology). Professor Dussaud's paper deals mainly with the Safaitic inscriptions or 'wasms' recorded by Group-Captain Rees.

With regard to stone walls in the desert, the following extract from Burckhardt is interesting* ;—'Gazelles. These are seen in considerable numbers all over the Syrian Desert. On the eastern frontiers of Syria are several places allotted for the hunting of gazelles; these places are called *masiade*. An open space in the plain, of about one mile and a half square, is enclosed on three sides by a wall of loose stones, too high for the gazelles to leap over. In different parts of this wall gaps are purposely left, and near each gap a deep ditch is made on the outside. The enclosed space is situated near some rivulet or spring to which in summer the gazelles resort. When the hunting is to begin, many peasants assemble and watch till they see a herd of gazelles advancing from a distance towards the enclosure, into which they drive them; the gazelles, frightened by the shouts of these people, and the discharge of fire-arms, endeavour to leap over the wall, but can only effect this at the gaps, where they fall into the ditch outside, and are easily taken, sometimes by hundreds. The chief of the herd always leaps first, the others follow him one by one. The gazelles thus taken

* *Notes on the Bedouins and Wahabys, collected during his travels in the East*, by the late John Lewis Burckhardt; in two vols. Vol. I, 1831, pp. 220, 221.

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are immediately killed, and their flesh sold to the Arabs and neighbouring Fellahs. Several villages share in the profits of every *masiade*, or hunting-party, the principal of which are near Kariatein, Hassia and Homs. Of the gazelle's skin, a kind of parchment is made, used in covering the small drum or tabl, with which the Syrians accompany some musical instruments or the voice'.

We do not go so far as to suggest that the kite-walls can be accounted for in this way, but only that, if Burckhardt's account is correct, traces of these walls should be found in the region referred to.—EDITOR.

NOTES ON THE ILLUSTRATIONS.

Plate I. CAIRN OF SAFAITIC PERIOD ON 'TELL A'.

Plates II and III and with figs. 4, 5.

The area is the basalt outcrop at the south-western corner of the Azrak mud-flat. Below the basalt, east of the area here shown the flats are usually too soft and wet to take an armoured car, but the Roman road begins and ends on good armoured car ground. This patch of basalt is the southern limit of the area that stretches away northward into Syria.

Starting at the eastern edge of the area the first thing to notice are the remains at A and B. Those at A consist of groups of hut-circles and are old, as can be seen from the group marked AS, under the words 'basalt area'. The cairns s date from the Roman period, and are built over the circle, which can be seen from the photograph to be very much older than the surrounding circle of huts. The huts are at present almost flush with the surface, and when seen on the ground are merely heaps of stones. The diameter of the groups is approximately fifty paces. The Arabs at present do not build in circles, but in lines like the groups B. A modern line of Arab tents leaves a string of rectangular marks, especially in rainy weather when a ditch is constructed round the tents; but the marks soon wear away. There are interesting marks, apparently of tents pitched in circular groups, between the stations of Jurf el Derwish and Aneiza on the Hejaz railway in the south of Transjordan. This area must have been somewhere near Oboth where the Israelites stopped before marching round Moab.

These are the only two places where the writer has noticed circular groups of hut or tent circles. Except in this area and in the one to the south no other markings of this kind are known.

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Below the group AB is the ring marked p with its surrounding cairns. The ring is modern and probably still used, whilst the surrounding cairns, although possibly built on old foundations, almost certainly contain recent Arab burials.

The white track is the Roman road from Kast Arrak to Kast Aweineid, and is kept open by the camels and rain. It is merely a track. It runs through and past the hut-circles. The circle marked 59 must not be taken to date either the road or the circle, because the cairns are so low as hardly to be an obstruction, and might very well have been entirely buried a few years ago.

The whole of this area is dominated by the cairn e, which was probably the original Roman signal station between Arrak and Aweineid. The original cairn appears to have been altered to a cairn of Salaitic type, which might have been the original signal station. The stones have been used more recently to construct the surrounding cairns, all of which now contain recent Arab burials.

At the south end of the road is Kast Aweineid. It is very disappointing, having been rebuilt in typical Arab style. The outer walls consist of fairly large stones piled up to make a rough wall and the interstices are filled with small bits of stone. From the photograph it will be seen that the present walls are not built exactly over the old foundations. At the south-eastern corner of the Kast is a Roman tower, very dilapidated, but the inscribed lintel of the entrance is still lying on top of the heap of stones. The inscription is very worn, but records something about one of the Roman Vexilla*. The tower commands the pool in the Wadi el Butum that still contains water for the greater part of the year.

Just south of the Kast on the flats (off the plate) is another square Roman tower. Its use is not very apparent, unless it commanded the old crossing of the wadi.

The Kast commands the view towards Jebel Rashrashiyeh and over Amari wells. Below the Jebel is the old Roman reservoir, about two days march away towards the south-east. The view extends towards the south-west almost as far as Kast Kharanch, and on the ridge that cuts off the view is a large cairn that was probably the Roman signal station.

The whole area for about a quarter of a mile north of the Kast is now occupied by graves, apparently recent Arab, but the ground is

* This inscription is new and not recorded anywhere.—EDITOR.

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covered with worked flints. All along the edge of the basalt towards the west are the cairns with tails marked H. These are of the Safaitic type, and can be dated by the inscriptions as being of and after the time of Christ. Some of these cairns have had a second wing added, and have been converted to graves of sheikhs of the tribe whose wasm (tribal mark) is four parallel lines. I believe this wasm belongs to a section of the Rualla. These sheikhs' graves are interesting as they are mostly oriented so that the wings protect the grave from the prevailing south-west wind; and because usually there is a doorway built in one wing, which is, I suppose, a spirit-door.

Under the words 'basalt area' are groups marked K. These walls probably date from the kite period. A finished kite is to be seen on the left of the area (which is reproduced as plate II). The groups can be identified by their letters till we get to the finished kite, which is a construction of medium age built over one of a much earlier type. The earlier wall can be seen inside the 'v' of the kite walls. Part of an earlier kite is marked K and juts out from the newer walls. The walls of the kite have been built over older constructions, and now form part of more recent ones.

The wall extending to the south can be seen running over an old hut-circle group, upon which modern goat pens have been built. The darker constructions marked M are modern circles built over old ones. They are used each year as the tribes cross the area.

Some of the old camel tracks can be seen leading from the various sites to the mud-flats that at present contain water only after rain, but which were probably permanent water-pools at no very distant date in the past. The tracks are old, for they show up as clear lines. The more modern and slightly used tracks show up as a chain because the camel has only troubled to kick away enough stones to allow him to step from one clear space to another.

At the top of the area (P), near the mud-flat, is a camel barak-place (from which we get our word barracks). The stones have been cleared over part of the area, but as usual the workers could not be bothered to finish the job, and have left the heaps of stones still lying about.

At the left hand bottom corner of the area there is a site that has always been a desirable camping site. It is round the head of the kite. The area has been built over and rebuilt and still has tents pitched on it each year. The persistence of such routine is perfectly marvellous. This site must have been used annually for thousands of years.

The whole of the area shown has flints scattered over it, and this

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makes it most difficult to date anything, because old flints can be found round what one knows quite well to be modern constructions.

The little circles in the wadi bed are probably recent Arab burials.

Plate IV and fig. 6. KITES SOUTH OF KASR AZRAK.

The kites are built on a basalt spur south of Kasr Azrak. A is the most modern type with a barb to prevent the escape of cattle. The strong points round the head are a spear's throw apart. B, B are kites of earlier types, built over the ruins of other kites. C, E are still earlier types.

Plate V and fig. 7. VILLAGE WEST OF LANDING-GROUND F.

The cairn groups are at B and C. Note how the tail of B group has been built over the circles at A. The circles at D are mostly more recent than the cairns. In two cases to the south-west the cairn group stones have been used to make the circles.

The whole top of the spur A, B, C, has been cleared and 'brushed' and the spur looks 'red' from a short distance.

Cairn E is probably an Arab grave made from the stones of B.

Plate VI. KASR AZRAK AND SURROUNDINGS.

Plate VII. THE FISHING VILLAGE OF HABEIBA.

The houses show up as rectangles and can be clearly distinguished. The village is built on a spur of basalt jutting out into one of the mud-flats that form a series between Kasr el Hallabat and Kasr Azrak. On the edge of the basalt in the mud-flat can be seen the fish-traps.

The largest rectangle lying at the east end of the spur is a Roman guard-house, and probably forms the half-way house between the two Kasrs.

The dark broken double line round the spur is a watercourse draining the mud-flat. The mud-flat seldom holds water but the watercourse usually has pools lying in it till late in the Spring. Sand-grouse water here in the early part of the Summer.

Numerous flints are found round the houses and many of them show that some of the inhabitants were employed in fishing.

The colour of the village of Habeiba is grey.

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Plate VIII. KASR EL HALLABAT (THE RUINED CASTLE).

The square is a Roman fort re-built later on the original foundation. An inscription in Latin, dated to 214 A.D., reads as follows :—

Pro salute domini Imperatoris Augusti nostri M. Aureli Antonini Pii Felicis Arabici Adiabenici Parthici Brittanici Maximi castellum novum aedificaverunt milites cohortis Ulpiae miliariae I Thracum sub Flavio Severo praefecto per P.(?) Furnium Julianum legatum Augusti pro praetore.

The following translation has kindly been supplied by Mr R. G. Collingwood :—

For the welfare of our lord and august Emperor Marcus Aurelius Antoninus (' Caracalla '), pious and fortunate, the mighty conqueror of Arabia Adiabene Parthia and Britain. The soldiers of the First Ulpian (i.e. Trajan's Own) Cohort of Thracians, 1,000 strong, commanded by Flavius Severus, prefect, built this new fort under the direction of Publius (?) Furnius Julianus, Imperial proprætorian legate.

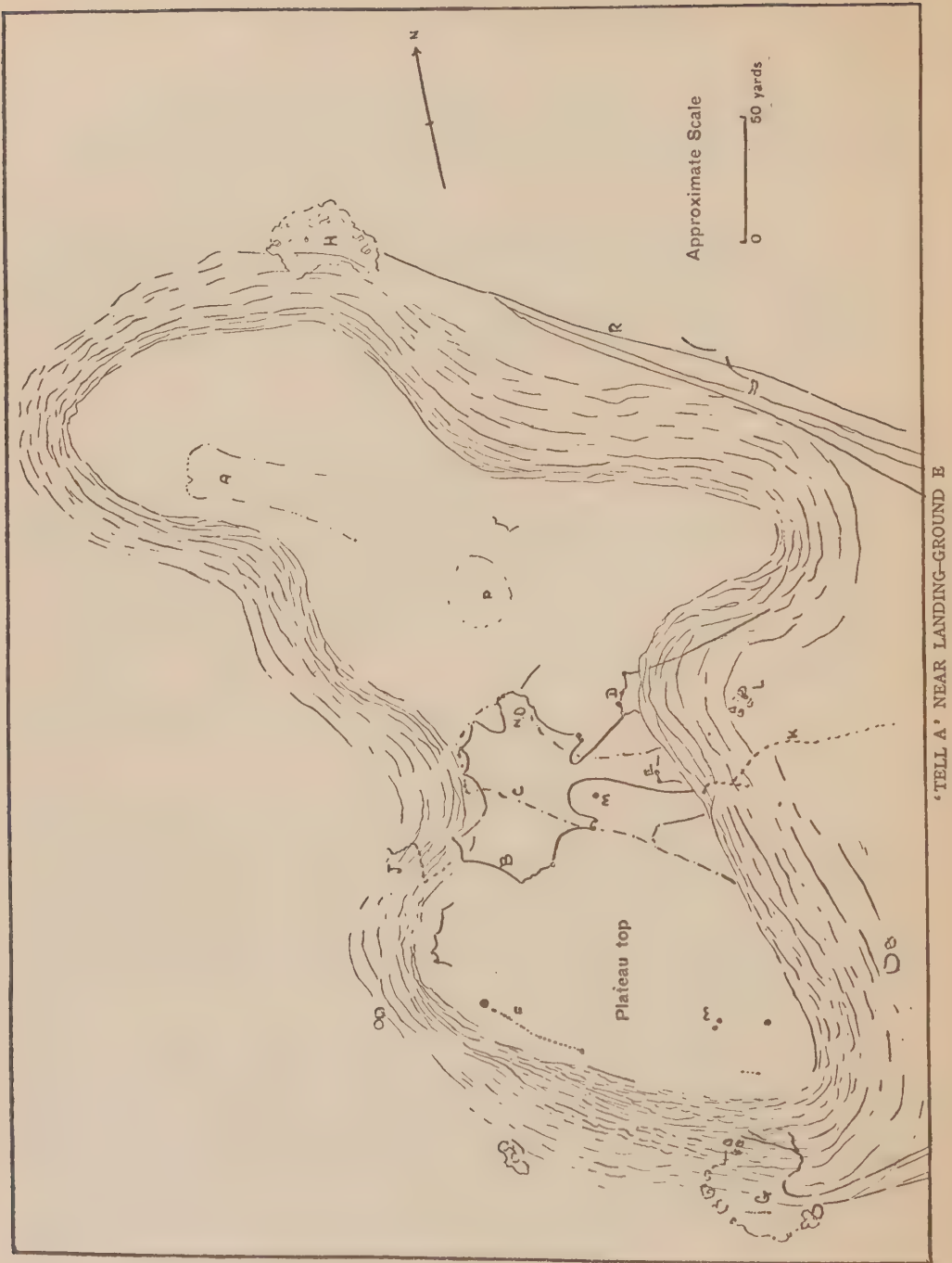
The inscription is published in Brünnow and Domaszewski, *De Prov. Arab.* III (1909), p. 323 (after Littman).

The northern part of the fort is a church bearing an inscription in Greek on the side of the door. A mosque, showing as a small rectangle, can be distinguished to the south-east of the main fort. Various Roman houses are also to be seen, all overbuilt by the Arabs.

The southern large hole in the ground is a Roman steined water tank, and the U-shaped rise in the wadi to the north of the tank is an Arab garden and water catchment.

A series of milestones link the Hallabat fort with the Roman town of Gada, and roads run from it to Azrak, to Salkhad, to a fort in the hills about halfway to Umm el Jimmal (on the present Syrian border) and to the Roman town of Aditha. No roads are to be distinguished running south and east, so that we may infer that this castle is probably one of the frontier posts.

FIGURE 8



TELL A' NEAR LANDING-GROUND E

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Plate IX and fig. 8. 'TELL A'.

- A Early type of kite. Note small cairns at mouth.
- C Early type of kite slightly progressed.
- B Latest but one type of kite.
- E, D Comparatively modern works.
- F Group of 'red' cairns.
- G, H Medium-aged kites, rebuilt as modern goat pens.
- J, K Paths up 'tell'.
- L Old village. Many flints here.
- M Modern Arab graves.
- N Comparatively modern circle, not connected with old kites.
- P Small mud-flat.
- R This wall runs across wadi and joins the group on the other side about two miles away.

The Holy Mountain

by J. H. DUNBAR

IT seems amazing that an African negro should ever have been able with any sort of justification to style himself 'Emperor of the World', and perhaps even more so that he should have been an enlightened prince ruling a people who were in many ways quite as civilized as we are today. For though it might be easy to imagine a native military genius, it is difficult to picture him as a patron of the finer arts.

From the very earliest recorded times what is now the northern Sudan—in those days described variously as Nubia, Ethiopia, or Kush—was in close relation with Egypt; and between the two countries there was a continuous exchange, not only of produce and material, but also of ideas and customs.

The Nubians, while readily susceptible to the influences of the highest culture, were nevertheless essentially a warrior race, and a constant thorn in the flesh of their northern neighbours. They were not to be overruled, even by the might of Ancient Egypt, and whenever they thought there was the slightest chance of success, they would sweep down on the Kingdom of the Pharaohs like wolves on the fold. The fortunes of war were fluctuating, victory resting sometimes with the Nubians and sometimes with the Egyptians, in which latter event the blacks would be conscripted and formed the pick of the Egyptian army.

By 1000 B.C. Nubia was firmly established as an independent kingdom whose capital was Napata, on the Nile at its fourth cataract, in what is now the Sudan province of Dongola. Two hundred and fifty years later Nubia was so powerful that her native king Piankhi was able not only to invade but also conquer the whole of Egypt; and for the next hundred years the black princes of Nubia wore, not unworthily, the Double Crown of Upper and Lower Egypt. Nubia's high-water mark was reached under Piankhi and his grandson Tirharka; and though the latter, after a lifetime of incessant fighting with the Assyrians, had to retreat to his native Napata, yet a hundred years later the Nubians were again strong enough to drive back the Persians under Cambyses.

THE HOLY MOUNTAIN

When the Romans conquered Egypt the Nubians were being ruled by a succession of Amazon queens with the title of Candace. Confident that they could drive out the European invaders, they again marched north, but were defeated. But such was the respect of Rome for these warlike blacks that she made with them a hundred-years treaty, paying Nubia annual tribute to leave Egypt unmolested.

In the sixth century Nubia became a Christian kingdom with its capital at Dongola, some hundred and fifty miles down stream from old Napata. Though continually harassed by Mohammedans, it survived until the Middle Ages when it at last succumbed, having had a not inglorious history as an independent power for two thousand five hundred years!

The ancient city—or more correctly, district—of Napata, is today the site of the villages of Kareima, Merowe, Nuri and Kurru. There can be few more delightful and impressive experiences than to explore this region that was nearly three thousand years ago the capital of a powerful and enlightened empire! Strangely enough, though so easy of access, this attractive spot is practically never visited except by Government officials in the course of their duties; and even the adventurous spirits who penetrate as far as Khartoum and Omdurman do not add to their itinerary the extra two or three days that could be so pleasantly and profitably spent there.

Kareima is the terminus of a branch line of the Sudan railways; and for miles away you see from your carriage window the crowning glory of Napata—Gebel Barkal or Barkal Hill, the Holy Mountain of the Ancient Egyptian inscriptions. Standing over three hundred feet high, covering an area of more than half a mile square and exceeding in mass by fifty times the great pyramid of Gizeh, the Holy Mountain, an isolated rock, rises sheer from the desert in grandeur and majesty like an island Gibraltar, all the more impressive from the partially detached fragment that rises abruptly beside it. (Plate 1).

Small wonder that these old-time peoples should have thought this natural pantheon to have been planned by the divine architect as an earthly lodging for the gods, and that prayers offered at the Holy Mountain would soonest reach their ears.

At the eastern end of Gebel Barkal are the remains of two huge temples, built by Piankhi and Tirharka, which in size and splendour would have matched our finest cathedrals. They must have looked superb against the background of the mountain, with their painted walls flashing in the sunlight. There are remains of massive pylons, columns

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and pillars—all of them carved with hieroglyphics and cartouches, and with figures of gods, kings and horse-drawn chariots. The carvings are covered with a white plaster that was painted or enamelled in the loveliest shades of blue, green, yellow and red. In Piankhi's temple, which was the larger of the two—it is nearly two hundred yards long and contains a hundred columns—there was an avenue of grey granite rams, and a ponderous granite altar most delicately carved. The altar end of the temple abutted right against the side of the mountain, and behind the altar there were doubtless chambers and corridors tunnelled into the mountain itself. Unfortunately a landslide has damaged this portion of the building and has made exploration too dangerous a proceeding. From the temple of Tirharka (plate II), however, there are rock chambers leading into the mountain. These may be safely visited: their walls are most beautifully carved and painted with figures of the Nubian gods.

Like practically all other Nubian sites, Napata has been continuously occupied down to the present day; and in the temples of Gebel Barkal are to be seen the mud ruins of what must have been Christian churches, while the whole neighbourhood is strewn with broken pottery of the Christian period.

The top of the Holy Mountain is as flat as a billiard table. What a sight it would have been had Piankhi used the mountain itself as a platform or plinth on which to build his temple! Imagine, three hundred feet above the shimmering sand, massive pylons springing from the mountain top and surmounted on festive days by painted poles flying coloured flags and streamers that would have seemed to reach to heaven! The idea apparently did not occur to him, or, if it did, not until it was too late to be put into practice: for the magnitude of the task would hardly have deterred him.

How dauntless in conception and perfect in achievement were those ancient Egyptians who ruled the world in arms, in culture and in craftsmanship for so many centuries! Later times, it is true, have produced a Julius Caesar and a Napoleon Bonaparte, but the most brilliant counter-attack in the world's military history was made by Rameses II against the Hittites at Kadesh three thousand years ago. There is no greater literature than our Bible; but some of the finest passages are strikingly like translations of the hymns to Aten. Neither Benvenuto Cellini nor the Goldsmiths and Silversmiths Company could surpass in design or in execution the exquisite work of those ancient Egyptian jewellers; while time has yet to give us another woman as

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capable as Hatshepsut or as beautiful as poor Nefertiti. Some twenty-five hundred years after Piankhi and Tirharka were dead, a French monarch so dazzled the world that he was styled the 'Roi Soleil'; but his palace at Versailles is but a tawdry affair when compared with the homes of the Ethiopians, who, as Kings of the Two Lands of Upper and Lower Egypt, were 'Sons of the Sun'.

There is a local tale to the effect that the novices, before being initiated into the mysteries of the temple priesthood and in order to prove themselves worthy of ministering to the mountain gods, had to undergo a searching trial by ordeal. The mountain was honeycombed with a maze of chambers, passages, secret doors and concealed stairways, to which were added various mechanically-operated obstacles and contrivances. The candidate for the priesthood was led to the entrance—no doubt from the inner temple sanctuary behind the altar—and left to wander. He promptly lost himself in the labyrinthine corridors, gradually succumbing to nervous terror as he was assailed by unforeseen or unknown dangers. Walking down pitch-dark passages the ground would suddenly disappear beneath his feet or he would tumble headlong into a shaft or well. Feeling his way along a wall, his outstretched hand would be grasped in a cold and clammy grip, or turning a corner he would be confronted with a glaring-eyed monstrous figure suffused with an unholy light. Ghostly figures would flit about him, and sepulchral voices whisper mockingly in his ear, or his blood would be frozen by peals of demoniacal laughter. Should he by any chance keep his head and, stumbling upon the right path, find his way out from this place of horrors, he was welcomed as fit to enter the service of the gods, and, as a member of the priestly caste, would soon attain to supreme power over his superstitious fellows and often over the Pharaoh himself.

Just behind the Holy Mountain is a pyramid field, one of the royal cemeteries of Napata, though neither Piankhi nor Tirharka was buried here. Some of the pyramids are of orthodox form but others have a most unusual appearance, being very high in proportion to their breadth. Many of the pyramids are in a state of perfect preservation; in front of them are the ruins of the funerary chapels, while the sloping shafts leading to the tombs beneath look for all the world like the entrances to deep dug-outs. The pyramids are not smooth-sided but mount in a series of narrow steps; they are beautifully made of blocks of stone, the way in which the corner stones are bonded and dovetailed together being a particularly fine example of workmanship. (Plates III-IV).

While at Gebel Barkal, the opportunity should by no means be

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missed of visiting Nuri, Merowe and Kurru, which also formed part of ancient Napata.

Nuri, up stream on the opposite bank of the river, is only about half an hour away by launch, and is a delightful spot. Mounting donkeys, you ride through the charming red and white village nestling in its grove of palm trees, and follow for two miles or so a grass-bordered canal between fields of cotton and barley to another pyramid area. The pyramids here are not so well preserved as at Gebel Barkal, as the local sandstone of which they are built is very soft ; but there is the compensating attraction in the fact that one of them was the grave of Tirharka.

Ten miles or so down stream from Gebel Barkal and on the same bank is the pyramid field of Kurru, and it was here that the great Piankhi was buried. Two of the tombs can be entered ; they are like those in the Valley of the Kings at Thebes though on a more modest scale. Here again the workmen were handicapped by the softness of the local sandstone. Each grave consists of two chambers, and ante-room, and the tomb proper which contained the sarcophagus. The walls are not carved as usual but are covered with a white plaster on which there are painted in the softest colours—still as fresh as when first they were applied—hieroglyphs, and figures of the king and gods ; while the roofs are like the canopy of heaven with their five pointed golden stars on a blue ground. In the cemetery at Kurru were the graves, not only of the kings and of the queens, but also of favourite horses which on the death of the sovereign were sacrificed and buried standing upright, so that the spirit of the king might be able to ride his ghostly steeds in the Other World.

Between Gebel Barkal and Kurru but on the opposite bank is Merowe, now the capital of the Sudan province of Dongola, just as Napata was the capital of old Nubia so long ago. Merowe is a model little African market town, and with its well-planned, straight, wide, clean and tree-bordered streets is a delight to the eye. Both government buildings, which are spacious and of pleasing design, and private houses, are of mud, and are of the peculiar terra-cotta red with white corners that is such a distinctive feature of this province. The colouring matter is obtained from a local stone which when dry is quite hard, but when boiled in water yields a most excellent distemper.

Merowe is justly famous for its museum, and for its fruit-gardens which supply towns such as Atbara—three hundred miles away—with the most luscious oranges and grape fruit. The museum—all the more

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interesting because it is not very large—houses the treasures that have been found locally. Here are to be seen a fine sarcophagus, steles and tablets, sphinxes and statues, vessels and utensils in stone and pottery, weapons and ornaments, memorial figures, carvings, columns and capitals, all from the temples of Gebel Barkal and from the cemeteries at Nuri and Kurru—the gem of the whole collection being a unique and life-size statue in black granite of Tirharka, the Biblical king of the Ethiopians.

These river excursions are the more enjoyable in that, in addition to the ancient glories of far-off days, you see displayed the whole panorama of native life in its charming and original simplicity. The villages have their special weekly market days, just like small towns at home, when on the stalls and booths are offered for sale not only the fruits of the soil but also articles of local art and craft—the province being noted throughout the country for its leather work. All along the palm-fringed river banks are to be seen the peasants, tending their crops of beans, barley and lentils, and raising with their water-wheels the precious liquid from the sacred Nile—just as did their fathers before ever kings reigned over Holy Napata.

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The Sahara

by E. W. BOVILL

THE history of North Africa is dominated by the Sahara, which has always been a vital factor in the lives of the peoples of Barbary and the Western Sudan. The cultural and economic development of both has been profoundly affected by intercourse between the two. Yet they are separated by a desert which forms one of the world's greatest barriers to human intercourse.

A slight increase in the aridity of the Sahara would so extend the waterless stages that the caravan routes would become impassable to camels and therefore to men—leaving, of course, mechanical transport out of consideration. A correspondingly slight increase in rainfall would quickly multiply the waterholes and desert pastures and render man independent of the now necessary camel. The question of climatic change in historic times is therefore a matter of importance to the student of the history of northern Africa.

The climate of nearly all parts of the world seems to have undergone changes in geologically recent times, and the Sahara is no exception. Long before the dawn of history, which in this region is placed in the fifth century before Christ, the northern Sahara supported a large sedentary population whose abundant remains are widely scattered over areas which have since reached the extreme limit of desiccation.¹ It then probably presented no obstacle to the migration of wild fauna. But those conditions belonged to times long anterior to the period with which we are concerned.

There is a very widespread belief in the instability of climate and it is almost invariably of a pessimistic nature. Man is ever ready to note deterioration in his home climate, and when he travels abroad and beholds the ruins of deserted towns, dry river-beds and extinction of wild fauna he is quick to see in them a confirmation of his suspicion that the world is decaying. Evidence of this type is probably nowhere

¹ E. F. Gautier, *Sahara Algérien* (Paris, 1908), p. 60 *et seq.* Lauzanne. *Bulletin du Comité de l'Afrique Française*, 1921, p. 246.

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more obvious than in North Africa, which in consequence is generally credited with being a victim of climatic change.

The world has few more impressive monuments to offer than the vast amphitheatre of El Djem, built to seat 60,000 spectators but today a ruin set amid utter desolation excepting for a few Arab hovels clustering at its foot which serve to emphasize its degradation. Or Timgad, lying like a bleached skeleton stretched on an arid plain, its deserted streets bordered by channels which we know once flowed continually with water. These and countless other ruins lie scattered over an inhospitable land which was once called the Granary of Rome. In the museums are numbers of mosaics taken from Roman villas representing a fauna now found only in tropical Africa,² while every schoolboy knows that elephants roamed North Africa in Carthaginian times. The evidence of climatic change seems to be overwhelming and consequently it is widely believed that the desert is encroaching from the south and, as a corollary, that the Sahara itself was in historic times very much less arid.

As the greater part of the Sahara has reached the extreme limit of aridity it is rather to its outer fringes, where desert conditions give way to steppe, that we naturally look for signs of progressive desiccation. In Barbary the problem has been closely studied by Gsell, the greatest authority on the history of North Africa.³ Exhaustive research has convinced him that conditions have changed but little since the Roman period. Purely local changes caused by earth movements and other factors are admitted but do not alter the main argument.

Throughout Barbary stories of failing wells and shrunken springs are common enough. In nearly every case it is due to neglect by the natives. Under the Romans special engineers (*aquilegi*) were appointed to look after the springs. Everything was done to foster and maintain the water supply. Most of the springs which supplied Roman settlements still exist and for this reason French colonies tend to rise on ancient sites. Whether the springs flow as freely as they did fifteen hundred years ago cannot be proved, but there is no evidence to the contrary.

Scattered throughout the country are the ruins of reservoirs, cisterns and wells which the Romans constructed to provide water for man and beast and for the irrigation of crops. The ruins of vast aqueducts striding across the desolate plains, impressive monuments to

² A striking example in the Bardo (Musée Alaoui) at Tunis illustrates Orpheus charming the animals, amongst which is a remarkable picture of the Bubal hartebeest.

³ Stéphane Gsell, *Histoire Ancienne de l'Afrique du Nord* (Paris, 1921), vol. I.

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the skill of Roman engineers, are a common sight. Cirta (Constantine) drew its water from twenty miles away, Caesarea (Cherchel) from nineteen miles, and Carthage from nearly ninety miles.⁴ All these works were destroyed or neglected by subsequent invaders.

The rivers today appear to carry as much water as they did in the past. They are navigable to the same extent and the Roman bridges were of no greater span than modern conditions require. Had the rivers been deeper many of the Roman fords would have been useless.

The modern traveller in North Africa sees little which accords with his preconceived ideas of the Granary of Rome. The crops are thin and the ears lean. Under the Emperors, Africa had to supply as a tax a quantity of wheat sufficient to feed half the Roman *plebs*, estimated at about 350,000 souls. As Gautier⁵ has pointed out, for a country of its size this was no great burden and in itself affords no evidence of more favourable natural conditions than those of today. Roman Africa owed much of its prosperity to the cultivation of the olive. All round the Mediterranean on sites formerly occupied by the Romans are found abundant remains of *amphorae* which contained olive oil and which still bear the marks of African potters. It was the presence of immense numbers of ancient oil presses in a vast wilderness which in recent years prompted an enterprising French director of agriculture to plant olive trees on a huge scale in southern Tunisia and thus restore prosperity to a derelict region.⁶

During the Roman occupation there were extensive areas entirely lacking in water. Capsa (Gafsa) was surrounded by immense solitudes but itself had an inexhaustible spring.⁷ Provision of water for troops was a constant anxiety to their leaders, notably to Caesar⁸ when fighting near Susse and six centuries later to Belisarius⁹ in the same region.

Several Roman authors would have us believe that Barbary was in their day less favoured than at present. Sallust's famous comment will be recalled: *cuncta terraque penuria aquarum*.¹⁰ Others had an equally low opinion of the country. It was certainly subject to severe

⁴ The Romans appreciated the value of good water and if local supplies were not of the desired purity they did not hesitate to look far afield for their needs.

⁵ E. F. Gautier, *Les Siècles obscurs du Maghreb* (Paris, 1917), pp. 14-16.

⁶ *Ibid. op. cit.*, p. 16.

⁷ Jugurtha. LXXIX, 4.

⁸ Bell. Afric. LI, 5. LXIX, 5. LXXIX, 1.

⁹ Procopius. Bell. Vand. I, 15, 34. De Aedificiis, VI, 6.

¹⁰ Jugurtha. XVII, 5.

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droughts. Hadrian was beloved of Africans because on his arrival in the country rain fell for the first time for five years.¹¹ Records of disastrous famines are numerous.

We now come to the question of extinct fauna, to which those who believe in the desiccation of North Africa attach much importance, Gsell has clearly shown that arguments based on this class of evidence, of which there is a great mass, are not conclusive.

The elephants which the Carthaginians caught and trained—an art which they had learnt from the Greeks, who were the first to use African elephants¹²—belonged to the same species as those which are today found throughout tropical Africa. They were however small in size, modified by isolation and environment. Wild elephants survived in North Africa far into the Christian era, their last habitat probably being the High Atlas. The belief that they had only survived under increasingly unfavourable conditions which eventually caused their extinction has no evidence to support it. There are regions in the Atlas and the Tell which are still capable of supporting elephants, though there are others such as Setif and Susse where elephants used to roam but which are now unsuited to them. A local modification of climate in the latter areas has probably taken place. But climatic change seems to have been as little responsible for the extinction of the elephant as it was for that of the ostrich, which has disappeared from Barbary within living memory, or for the fast approaching extinction of the lion and leopard.

The Romans themselves were directly responsible for the extinction of the elephant as they probably were for that of other species which today are found only south of the Sahara. The principal cause of the enormous destruction of African fauna was the demand for beasts to provide sport at the Games. Augustus tells us that 3500 African animals were slain in the twenty-six Games which he gave to the Roman people.¹³ The elephant however was principally persecuted for its ivory, immense quantities of which used to be exported to Rome. It is interesting to note that according to Pliny the cartilage of an elephant's trunk was one of the particular delicacies served from Roman kitchens.¹⁴

¹¹ Hist. Augusti, *Hadrian*, XXII, 14.

¹² The Greeks had learnt the use of elephants during the campaigns of Alexander, first at Arbela and afterwards in the Indus valley where elephants were opposed to them. They subsequently organized elephant hunts in Africa.

¹³ *Res gestae Divi Augusti*, IV, 39.

¹⁴ *Natural History*, V, I. VIII, 10.

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The arguments for a general modification of climate in North Africa during the historic period do not carry conviction. Deserted cities are found to be still habitable, rivers are much the same as they used to be, droughts seem formerly to have been as frequent as they are now, and conditions are not generally unfavourable to fauna which are now extinct.

Gsell thinks that North Africa as a whole may perhaps have enjoyed a slightly more abundant rainfall in Roman times. ' Mais, en somme ', he concludes ' si le climat de la Berbérie s'est modifié depuis l'époque romaine, ce n'a été que dans une très faible mesure '.¹⁵

Turning from the northern to the southern fringes of the Sahara we have to consider an entirely different type of evidence. In the Sudan, records of the past are as scarce as they are plentiful in the north. There is hardly any material to enable us to picture accurately the country as it was a thousand years ago, or even five hundred. The few written records confine themselves to genealogies and the bare facts of history. They throw little light on contemporary conditions of life. Architectural monuments scarcely exist. Almost the sole building material has been clay, so soft and friable that an abandoned site soon crumbles into mounds of earth which vegetation quickly obliterates.

Reliable records date back only to the European occupation, scarcely a generation ago. They provide however a mass of evidence which places it beyond all doubt that whatever may have happened in the past the present is a period of progressive desiccation. The Sahara is encroaching on the Sudan.

In Senegal, desert conditions are becoming increasingly prevalent. Wells are failing and rivers are shrinking. The river beds are being choked by drifting sand and their waters are becoming increasingly saline. Crop failures due to decreased rainfall are a constant source of anxiety to the authorities. Of great significance is the tendency of the sedentary population to migrate southwards in search of less arid regions, their place being taken by pastoral Moors from the desert.¹⁶

On the Upper Niger, Lake Fagbini is drying up and the area of annual inundation is shrinking. It has been proved that in the fifteenth century, when Soni Ali of Songhai attempted to link Walata with the

¹⁵ Gsell, *op. cit.* vol. I, p. 99.

¹⁶ *Annales de Géographie* (1917), XXVI, 231, 377 et seq. *West Africa*, 1 April 1922. The Gambia, *Annual Report*, 1920.

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lake by a canal, its shores extended much further westward.¹⁷ Within the bend of the Niger a tendency among the Tuareg to migrate southward has long been noticed.

Passing eastwards into Nigeria we come to an area where much evidence of desert encroachment has been collected. The northern frontier falls roughly where the thinly populated pastures and unsettled conditions which are characteristic of the fringes of the Sahara emerge into fertile plains supporting an extensive agricultural community. Along this frontier water is the limiting factor in the lives of the people, who at once feel the effects of fluctuation in the supply. In the provinces of Sokoto and Bornu dry river-beds, dwindling lakes, shrinking wells, failing crops and a southward movement of agriculturists are unmistakable symptoms of progressive desiccation.¹⁸

In northern Nigeria there has perhaps been too great a tendency to ascribe every movement of the population to desiccation. The attachment of the African native to the soil is not great and it takes little to set him moving. The causes are often political. Conscription, taxation, and irksome restrictions frequently lead to migrations across political frontiers. Natural increase in population, which has been very marked throughout Africa since Europeans put an end to tribal war and curbed the ravages of famine and disease, constantly causes communities to outgrow the resources of their locations. When this happens the people must move.

In the Western Sudan the southward movement of the population is too general and the excuse of shrinking wells and failing crops too common to be ascribed to anything but some great natural cause. This is generally admitted to be progressive desiccation.

But the desiccation of the Western Sudan is not itself wholly natural. The incalculable harm which is being wrought throughout tropical Africa by the shifting cultivator is now widely recognized. The African farmer has little knowledge of crop rotation or manuring. He cultivates his land to exhaustion and then with fire and steel makes a fresh clearing in the surrounding bush or forest. In 1924 the Governor of Nigeria declared that 'the necessity for protecting the people from

¹⁷ E. F. Gautier, *Sahara Algérien* (Paris, 1908). H. S. W. Edwardes, *Geographical Journal* (1919), LIII, 206. Col. Mangeot, *L'Afrique française*, 1922, p. 527.

¹⁸ H. S. W. Edwardes, *loc. cit.* Nigeria, *Annual Report*, 1921. E. W. Bovill, *Journal of the African Society* (1921), xx, 181-5, 259 *et seq.* Sir Hector Duff, *Cotton Growing in Nigeria* (London, 1921), pp. 4, 8. Col. Tilho, *Geographical Journal* (1920), LVI, 245. Hans Vischer, *Geographical Journal* (1909), xxxiii, 259.

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their own improvidence, which if left unchecked will inflict untold calamity upon posterity, is as urgent as ever . . . literally thousands of square miles of forest have disappeared since the War broke out'.¹⁹ Agreement has never been reached regarding the extent to which forest affects climate. It is however the common experience of man that trees conserve moisture and that the destruction of forest impoverishes the soil and causes increased aridity. Great as is the harm wrought by the shifting cultivator, he cannot be held wholly responsible for the shrinkage of rivers, lakes and wells on the huge scale which we find in the Western Sudan. Climatic change is undoubtedly playing its part, but man himself is aggravating the evil.

Geologists are disinclined to admit that the Sahara is encroaching on the Sudan, though they concede instances of local desiccation. They even maintain that the movement is in the contrary direction, and base their arguments on the occurrence of dead *erg* or fossil dunes in regions now lying south of the Sahara and enjoying a substantial rainfall.²⁰ These fossil dunes, which could not have been formed except under desert conditions, are widely distributed and seem to point unmistakably to a former southward extension of the Sahara far beyond its present limits. Their presence however in no way affects the conclusion that the present period is one of increasing aridity.

It has been established that the climate of many parts of the world has been subject to pulsations of wet and dry periods since the quaternary period. The Sudan was probably one of them.²¹ Neither in the existence, at some period of unknown remoteness, of desert conditions beyond their present limits nor in the overwhelming evidence of a now existing phase of progressive desiccation is there any proof that in the Sudan the distribution of desert, steppe and bush has changed seriously in the last fifteen hundred years. The Sudan affords no evidence that in historic times the Sahara differed greatly from its present condition.

Turning now to the Sahara itself we find that, like Barbary, it has a curious residual fauna. Crocodiles have been found in at least three parts of the desert—the Wad Mihero, the Ahaggar Mountains and Enedi. The cobra survives in Biskra, Figuig and Gurara. Cat-fish are a comparatively common feature of desert pools. The Ahaggar

¹⁹ Nigeria, *Governor's Annual Address* (Lagos, 1924), p. 121

²⁰ E. F. Guéniot, *Sahara algérien* (Paris, 1908). R. Chudeau, *Sahara soudanais* (Paris, 1904), pp. 444-55. *Annales de Géographie* (1916), xxv, 455.

²¹ Henri Hubert, *Annales de Géographie* (1917), xxvi, 384.

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Mountains harbour Barbary sheep.²² These and other species now surviving in the Sahara, all belonging strictly to more humid regions, provide somewhat spectacular evidence of climatic change. But like the extensive remains of a large sedentary population which once inhabited the Algerian Sahara they have no bearing on the question of change since the dawn of history.

Throughout the rapidly growing literature of Saharan travel there are constant references to advancing sand and shrinking oases. Ancient caravan routes are being abandoned owing to failure of wells. Recently deserted oases are common incidents of travel, and tales of others which have been recently lost are only less frequent. The common explanation of these phenomena is desiccation due to climatic change. This certainly seems to be a contributory factor, but that man himself is the chief cause is a conclusion at which all familiar with the Sahara eventually arrive.

The decay of the oases in the last few decades has been principally due to political unrest. Small though the population be, the resources of the Sahara are strained to their utmost to support it. Starvation and plenty are divided by a narrow and highly sensitive margin which quickly disappears with any reduction of the already inadequate water supply.

The people of the desert are extremely virile and live permanently on a war footing. They cultivate corn and dates in the oases on a modest scale but they are mostly pastoral nomads with highly developed predatory instincts. Their camels and their own hardihood have made them the most mobile people in the world. When the meagre desert pastures begin to fail the community starts moving and conflicts are inevitable. To the small sedentary cultivators of the oases the nomads have always been a constant menace. At any moment the dreaded *razzia* may fall upon them with the inevitable result that they lose their crops if not their lives. This general condition of insecurity—the French have now almost put an end to it—has resulted in the cultivators abandoning to the desert all but the minimum area necessary to their needs. For the same reason there is, or was until recently, a marked reluctance to sink new wells and to repair the old ones. Under such conditions frequent opportunities occur for the desert to encroach on

²² Conrad Kilian, *Au Hoggar* (Paris, 1925), pp. 106, 139-43, 158, 165, 178. W. J. Harding King, *Geographical Journal* (1919), LIII, 49. E. F. Gautier, *Le Sahara* (Paris, 1928), pp. 61-7.

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the cultivable areas. Often in the recent past the whole population of an oasis has been wiped out, with the inevitable result that the desert has crept in and completely enveloped the gardens. A striking example of desert encroachment was afforded by the short-sighted action of the French in attempting to drive the Tuareg out of the Air Mountains after the rebellion of 1917. 'Depopulation allowed the desert to encroach' wrote a recent traveller. 'Walls fell in, gardens went out of tillage and the livestock of the country, more especially the camel herds, were reduced to a fraction of what they had been'.²³

The abolition of the slave trade has also had an unfavourable effect on the economic conditions of life in the desert. The oases used to be cultivated principally by negro labour imported from the Sudan. With the cessation of the slave traffic the negro population of the Sahara has shrunk, and with it the oases. The decay of the caravan routes may be traced to political insecurity and to the diversion of trade to newly opened European channels. This is particularly true of the ancient salt traffic, which has lost nearly all its former importance.

The difficult task of controlling this vast desert region is one to which the French have applied themselves with vigour, and a remarkable degree of success has been attained. By enforcing tranquillity on the nomads fresh life has been infused into the oases, and a tendency to adopt a sedentary life has even been observed. That political insecurity has been the chief cause of the shrinkage of the oases is established by the fact that with the return to settled conditions not only is the encroachment of the desert being arrested but lost oases are being reclaimed.

Man, who is but a secondary cause of desiccation in the Sudan, must be held primarily responsible for the continued activity of the same process in the Sahara. In both regions climatic change is a factor of greater or lesser importance; but conclusive evidence that it has produced a material change in the general character of the desert since the Romans first attempted its exploration is still wanting.

This view, which has the support of those familiar with the desert today, is fully confirmed by the classical authors. Its present condition answers closely to the description of Herodotus, who says: 'Above the coast-line and the country inhabited by the maritime tribes Libya is full of wild beasts; while beyond the wild beast region there is a tract which is wholly sand, very scant of water, and utterly and entirely a

²³ F. R. Rodd, *People of the Veil* (London, 1926), p. 361.

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desert'.²⁴ He returns more than once to the utter desolation of the desert.²⁵ Gsell quotes similar passages from Theophrastus, Strabo, Diodorus Siculus, Pomponius Mela and Seneca.²⁶

We are very ignorant about the relationship which existed between Barbary and the Sudan during the Carthaginian and Roman periods. But evidence is not wanting that in these very early times there was considerable traffic in the desert. There is reason to believe that the desert was crossed in Punic times before the camel had been introduced into Africa. It is very doubtful whether such a journey could be made under those conditions today. It seems likely therefore that the caravan routes were not then so ill provided with water as they are now. The slightly increased rainfall which Gsell thinks North Africa may possibly have enjoyed in Roman times perhaps extended into the desert, affording better facilities for watering and providing more extensive pastures.

So much may be conceded without admitting any material change in the general distribution of desert and steppe in northern Africa. As our knowledge of Barbary, of the Sudan and of the Sahara increases, the more reason have we to believe that little change has taken place in any one of these regions since the dawn of history. The successive waves of invaders which swept across North Africa experienced climatic conditions closely similar to those of today. To each the Sahara presented an all but insuperable barrier to intercourse with the Sudan. At no period does man appear to have contemplated the crossing of the Sahara except as an enterprise involving grave risks and demanding the greatest hardihood.

²⁴ Herodotus, II, 32.

²⁵ Ibid. IV, 181, 185.

²⁶ Gsell, *op. cit.* vol. I, p. 57.

Zimbabwe

based on the British Association report

by G. CATON-THOMPSON

IT is now 24 years since Dr Randall MacIver investigated the problems of the origin and age of the Southern Rhodesian ruins. Nothing of any scientific consequence has since been added to the evidence on the purely archaeological side, with the exception of the partial excavation of the so-called Western Temple of the Zimbabwe Acropolis.

In physical anthropology, we had, in 1924, Sir Arthur Keith's report on four ancient skeletons found in gold mines, and one from Zimbabwe itself.¹ They were of Bantu type, but do they represent the original miners, and how old are they?

Dr MacIver is the only competent trained archaeologist who has contributed to the subject; but while I have relied on his facts as accurate, at no time have I allowed his conclusions to influence my judgment on the evidence which he has produced. In numerous ruins in Mashonaland and Matabeleland Dr MacIver found, at levels considerably lower than the foundation courses of the containing walls, datable Oriental and European imports of medieval age, consisting of Chinese porcelain, Persian faience, Indian and Venetian beads, Arab glass. These facts were, in his opinion, conclusive evidence that the buildings were medieval. With these dated imports was a quantity of native African pottery, metal work and other objects, differing little from those still made by local Bantu tribes today. No object datable as earlier than early medieval was found by him, or had indeed ever been found by the too active amateurs who had preceded him, who had had the pick of the untouched ground, and who clung on very dubious evidence to the idea of a Phoenician or even older South Arabian origin.

A structural peculiarity of the great ruins at Zimbabwe, situated in Mashonaland, about 170 miles south of Salisbury, is the presence in

¹ *Procs. Rhodesia Sci. Soc.* (1924) XXIII, 20-22.

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many of the enclosures of hard floors of crushed granite cement, contemporary with the walls: these, when intact, would absolutely prevent objects on the floors from sinking to a lower level. Dr MacIver saw the stratigraphical importance of these floors, and in Zimbabwe's Elliptical Temple alone he dug seven test trenches through them, finding native objects identical with those above the floor and imported articles which could be dated as medieval.

The seventh test, in enclosure 15, has become historic. Mr R. N. Hall had, in previous years, all but cleared out this enclosure, removing 12 vertical feet of deposits from above the original cement floor, at which level he stopped. His published section shows Nankin china, Arab glass and native pottery in what he calls his fifth stratum from the top—a stratum immediately overlying the original cement floor, and from this fact he inferred its later date.²

Accidentally or otherwise, Mr Hall left a small section standing. This was found and critically examined by Dr MacIver, who asserted that Hall's stratigraphy was mistaken, and that his fifth layer containing the medieval china and glass was, in reality, not a separate stratum, but an integral part of the cement foundations of a hut, forming a stratigraphical unit with the cement floor on which it rested. That being so, the cement would be dated by the objects found in it as medieval. Dr MacIver carried on excavation at this spot through the cement floor down to bedrock five feet or so below. He got no datable objects; but a definite stratum of ash and sand was encountered, its level being some feet below the level of the foundation courses of the temple walls. This lowest stratum contained coiled bronze wire bangles, native pottery, and spindle whorls, similar to the same objects found associated with the mediievally dated products at higher levels.³

On inference, therefore, and in conjunction with his positive evidence Dr MacIver urged the approximate synchronism of the two within a century or two. Certain ambiguous features were, however, pointed out at the time with some force by Dr MacIver's critics,⁴ who demanded a clearer definition of the exact relationship of the lowest occupation layers, beneath the cement floors, to the main walls of the buildings:

² *Great Zimbabwe*, p. 103.

³ *Medieval Rhodesia*, pp. 61-4.

⁴ *Geographical Journal* (April 1906) xxvii, 344-5.

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were they, in spite of their lower level, contemporary, or were they earlier? At Zimbabwe, that lowest level in enclosure 15 was never dated, for the mediævally dated objects lay very considerably above it, and the similarity of simple articles found in it to those at higher levels is only an inferential, not a conclusive, argument for approximate contemporaneity. My chief object therefore has been directed towards checking the exact relationship between the lowest occupation layers (beneath the original cement floors) to the main walls of the buildings, and to test first the stratification over a wide continuous area, not only down to bottom, but to test it with particular reference to its behaviour in relation to the main walls,—in short to see if evidence could be collected proving the walls contemporary with a pre-mediæval level; and, secondly, to check the results by means of excavations in the deepest undisturbed sections available in other areas, as well as by excavations vertically beneath some structure of unquestionable antiquity.

That programme may seem a very modest one, in view of the numerous lines of investigation which the problem invites, some of which Dr Frobenius has followed with such remarkable results. But I believe it to be a radical one, controlling, in a way nothing else is likely to equal, the dating evidence, and in pursuing it I have willingly sacrificed more spectacular work in favour of limited and methodical excavations, tying us for weeks on end to one small area. The work has been mainly a study in stratigraphy.

To fulfil the first part of this programme a site had to be found providing two essentials not easy to come by:—

(1) A site unquestionably as old as Zimbabwe's Elliptical Temple.

(2) A site showing an intact cement floor, and yet a site of sufficiently minor importance to warrant the inevitable destruction of that floor.

Dhlo-Dhlo, which I visited and tested on arrival in Rhodesia, failed under the first heading; the Zimbabwe Temple and Acropolis failed under the second.

In early March (1929) in a week of pitiless rain, in a wilderness of long, wet grass, I found the spot which seemed likely to meet the case—the Maund ruins, in the Valley of Ruins, Zimbabwe. (Plates II–III). The walls are ruinous, but show all the features characteristic of the Temple—the rounded bastioned entrances, with triangular grooves for support of stone jambs, the peculiar swing out of the bottom courses to form stepped approaches. Even Mr Hall, who believed in several

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different periods of building, was satisfied that these ruins belonged to the oldest group. As to previous disturbance, I was guided largely by the vegetation, which grows with peculiar luxuriance on disturbed soil ; here it was comparatively modest. I was not disappointed. An absolutely intact granite cement floor was found over practically the whole area. The stratification was as follows :—beneath a variable thickness of humus came 10 to 12 inches of a hard yellow, artificial cement, formed of pulverized granite ; this had been laid as a floor by the original builders and it covered the bottom three or four courses of the walls. This cement, in turn, overlay 2 ft. 6 in. to 3 ft. of a brown-red soil of natural origin—hill wash—but containing charcoal, sherds, iron slag and other things. Upon this the walls were actually built, and we found this to be the case with only one exception in every one of the 29 segments of walls contained in the Maund ruins. Now an occupation layer resting on virgin soil and forming the very foundation upon which the builders based their walls was one of the things I most wished to study in great detail, and though it involved stripping the walls bare and clearing the ground down two or three feet lower than their bottom courses, I did not hesitate to do so. There was a fourth stratum, of considerable, though intermittent extent—a red dagga in great mounds, with the timber of huts in it in excellent preservation. The dagga structures appear to have been made by later occupants, but not much difference could be detected in the objects collected from them. (Plate IV).

The objects from the lowest stratum beneath the intact cement floor are as much *in situ* as any ever will be this side of heaven. One could not reasonably expect to find very much in such a position, but there was sufficient for our purpose. The pot-sherds, coarse red-brown ware, gritty with quartz particles, numbered 448 and were in small fragments. Of these about 40 were rims. Dr MacIver figures what appears to be similar pottery from the Niekerk ruins near Umtali. It is of interest to remember that he judges the Umtali-Niekerk-Inyanga group of ruins to be rather older than Zimbabwe. With this class of rough pottery was a small quantity of plain black graphite-polished ware indistinguishable from that found all through the higher levels. A disc-shaped spindle whorl in the same rough pottery was also found.

A certain amount of iron came also from this stratum. Lumps of iron slag were distributed throughout, though we found no smelting furnace ; some came from directly beneath the cement floor, some from the very bottom, resting on virgin soil, from this earliest pre-wall stratum. There were also a few iron weapons. Fragments of bangles

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of flat bronze wire coiled over grass fibre were also found. They are of the type familiar to everyone who has dug in the Rhodesian ruins and are found at all levels. Amongst these objects, clearly of native manufacture, there was nothing which could be dated. Are they older than the walls, even if we cannot say how much, or are they contemporary, in spite of being at a lower level and in a deposit upon which the walls rest?

At this point, where it might seem we had reached an archaeological impasse, the Maund ruins provided material in this same stratum for another line of reasoning.

Mr R. N. Hall,⁵ has recorded that in the Elliptical Temple (plate 1)—situated less than 300 yds. from the Maund ruins—were found curious stone pavements of uncertain purpose underlying the granite cement floors. One such still remains alongside the Conical Tower.

It was therefore interesting to find, when excavating the lowest stratum in the Maund ruins, that narrow pavements of thin granite slabs had been similarly laid down in several of the enclosures. Plate IV shows one of them, stripped of the overlying 10 in. granite cement floor, mysteriously connecting two enclosures through a bastioned doorway. Their levels in some cases raised interesting and teasing problems in stratigraphy; but after weighing the possibility that these pavements might belong to a period of occupation older than the existing buildings with their cement floors; and with due consideration for alternative interpretation of their purpose, we came to the conclusion that these pavements were laid for the temporary convenience of the workmen erecting the walls, in what was a very muddy locality—the cement flooring which covered them is itself an expedient to keep dry in a land of very heavy rainfall. If this interpretation is correct it destroys the idea of an occupation before the walls were built.

The evidence from the Maund ruins may therefore be interpreted as follows :—

(1) No case can be established for an occupation earlier than the building period.

(2) The objects of this period excavated from a sealed deposit include iron weapons, spearheads, arrowheads and an axe, also bronze wire bangles, typically Bantu in character.

(3) Prior to the construction of the walls building pavements were laid down.

⁵ *Great Zimbabwe*, p. 239: 'From the base of the northern wall of this section to the centre of this area is a cemented floor laid on a pavement of blocks'.

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(4) No article was found at any level which was not of native manufacture, nor were there any imported articles to give a dating clue. These came from our work in other parts of Zimbabwe and from five distant sites, three of which lie in the Sabi Reserve in Eastern Mashonaland.

No one has hitherto attempted to lay bare the middens of the original inhabitants of the Zimbabwe Acropolis (pl. II), and I was anxious to know at what depth they lay and to help out the dating problem more positively than the earliest stratum in the Maund had enabled me to do. In one case, after good iron implements and two fragments of a soapstone bowl had been found in the top 5 ft., the strata passed down irregularly at about 12 ft. 6 in. into black midden, with quantities of split animal bones, chiefly ox, of no very ancient aspect, and sherds; between 13 ft. 6 in. and 15 ft. came two pots of undecorated native ware, six pottery phalli and fragments of bronze wire bangles. At 18 ft. on rock bottom were two more pots which resembled ordinary Bantu pots.

Another test trench, carried alongside the second terrace wall from the top, was even more interesting. Under a terrace filling of red dagga clay and rough granite blocks, at 8 ft. beneath the surface, a curious stone structure was encountered, completely buried in the terrace levelling process and therefore earlier. It measured 10 ft. long by 4 ft. wide and 6 ft. high and was solid except for a narrow 5 in. vertical vent. Its purpose remains a mystery. The deposit round it was burnt in places, but no trace of fire could be detected upon the stones, and its solidity precludes its use as kiln or furnace.

But what concerns us stratigraphically is the fact that it rested on a foundation of roughly laid stones, and that round it a paving of thin granite slabs lying at from 15 ft. to 17 ft. beneath the surface, as in the Maund ruins and the sacred enclosure of the Conical Tower, served it on the three sides which could be cleared. The objects found in the underlying stratum are therefore as much from a sealed deposit as in the Maund, but at nearly five times as great a depth. It yielded fragments of iron tools, iron slag, a white porcelain bead threaded on thin copper wire, and 80 other beads in coloured opaque glass—blue, green, yellow, red, black—of types found in many of the Rhodesian ruins.

That they represent the earliest period of Acropolis débris, I have no doubt at all. They lie in a stratum on rock-bottom, under 24 feet of superposed débris. The depth means little in itself; but these beads and other objects were already there when people using

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the same building pavements that we found in the Maund ruins built a stone structure upon the midden deposit which contained them. This structure in turn must antedate the stone and dagga filling which buried it to a depth of 8 feet. Finally that stone and dagga filling is synchronous with the formation of a terrace with a solid retaining wall. This evidence is in harmony with that obtained in 1915 inside the main wall of the Acropolis, when a section of the infilling, about 17 feet thick, was cleared and Bantu pottery and iron implements were discovered down to bottom.⁶ These excavations are seen in plate II.

In the good old days before geology and evolution upset everything it was, I believe, stoutly maintained that fossils, when found in deposits suggestive of an age greater than B.C. 4004 had been placed there by the devil to deceive mankind. Possibly he also placed those glass beads in the most ancient deposits at Zimbabwe; no one else could have done so except the original inhabitants. However, despite this evidence in the Maund ruins and on the Acropolis, in order to make sure that no older deposits existed in the neighbourhood of the Elliptical Temple (itself too ransacked to provide safe data), we dug an extensive series of trenches outside its girdle wall. The evidence was everywhere the same; coiled wire bangles, spindle whorls in pottery and soapstone, phalli, fragments of soapstone bowls, and iron tools were found, with imported beads down to bedrock, similar to those from the 24 ft. level sealed midden on the Acropolis. One last endeavour was made to clinch the matter finally and incontrovertibly. It is obvious that any object of racial or temporal stamp found *in situ* in undisturbed deposits vertically beneath an original wall would settle the matter, even to the average layman unfamiliar with the intricacies of archaeological evidence.

Around the Conical Tower at Zimbabwe have rallied all the theories of Semitic origin; it was fitting, therefore, that this famous structure should submit to a practical test which has never been before attempted. With the consent of the Rhodesian Government, a tunnel was driven right through from side to side, exposing, on a width of 3 ft. to 4 ft., the underlying deposits down to bedrock. My idea that the Tower might be the superstructure of a grave is disposed of. It rests, without any prepared foundation whatsoever on 6 ft. odd of natural sandy deposit overlying the granite. The bottom 5 ft. 6 in. or so of this is sandy yellow granite subsoil similar to that we found underlying the Maund ruins.

⁶ See Mr Douslin's paper in the Proceedings of the Rhodesia Scientific Association, June 1921-22.

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The first thing found was a beautiful early Stone Age implement (a 'coup-de-poing'). I present it to those who believe in Zimbabwe's great antiquity. Another crude implement showed that the soil had been undisturbed since Palaeolithic times. Above this undisturbed soil was a thin layer of reddish hillwash, and on this the Tower rested. Every inch of this reddish soil was washed and sieved; it yielded a small iron band, a minute gold bead, traces of a wire bangle and a small sherd of the usual black polished native pottery. The purpose of the Tower remains as obscure as ever. Viewed from below its workmanship is as haphazard as most of the buildings. With level granite rock only 6 ft. below the builders laid their foundations on sand. They did not level them, and on a diameter of 18 ft. 4 in. there is a fall of 1.19 ft. That this is not due to later subsidence is shown by the fact that thicker courses, to correct the error in the ground courses, have been introduced higher up the Tower. This is hardly the work of high civilization and confirms Mr J. F. Schofield's architectural estimate.⁷

On the Sabi river watershed, some 90 miles north-east of Zimbabwe, the expedition examined the Matindere and Mshosho ruins, and also Chiwona, a fortified terraced kopje only reported last November, and previously seen by only four white people. These sites, which we planned, yielded objects similar to those from Zimbabwe. On the stratigraphical evidence of the bead imports found in them, I would suggest that Chiwona is the oldest, whilst Matindere may be chronologically linked with Dho-Dhlo in Matabeleland, which provided good evidence for a 16th cent. A.D. building date.

An interesting and extensive site, Chibvumani, lying about 60 miles east of Zimbabwe, was also planned and tested. Events there appear to have followed the same course as at Zimbabwe, the old building being in places completely buried beneath mounds of red dagga clay introduced by later inhabitants, and which has raised the latest occupation level some 9-10 ft. above that of the original wall-builders. Here again the bed-rock stratum yielded glass imported beads similar to the oldest series at Zimbabwe.

Our final excavations took place at Dhlo-Dhlo, an attractive little fortress about 40 miles from Bulawayo (plate v), examined in 1905 by Dr MacIver. Choosing for my examination the same enclosure

⁷ J. F. Schofield, 'Zimbabwe: a Critical Examination of the Building Methods Employed'. *South African Journal of Science* (Dec. 1926), XXIII, 971-86.

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that yielded him the evidence for assigning a 16th cent. A.D. or later date to the building⁸ we cleared a section down to bedrock, about 14 ft. beneath the latest occupation layer. Immediately overlying the granite rests what appears to be a true Stone-Age stratum, extraordinarily rich in small quartz flakes, associated with a few sherds of rough pottery. Above this layer we passed into one indicative of advanced civilization : a burnt hut, its contents surprisingly intact beneath the cushion formed by its charred thatch roof, enabled study, for the first time in the history of excavations in Rhodesia, of the associated articles of everyday life in a native hut of antiquity. On a smooth cemented floor, supporting a semicircular cement platform in two tiers, designed to accommodate the domestic pots (a similar provision is still in vogue amongst the Mashona tribes), lay nine unbroken jars and bowls, in hand-made, well-finished and polished red and black ware. With them was a broken, but complete porcelain bowl and a square green glass bottle (plate VI). A quantity of blue glass beads, and bronze wire bangles and anklets studded with glass beads were associated with the charred remains of the two occupants of the hut ; so great had been the heat, that beads and metal had, in places, fused upon the bones. Iron objects were also recovered. Although this hut vertically underlies the stratum dated by Dr MacIver as not earlier than the 16th cent., I have as yet reached no certainty that it antedates that period. Experts differ, and whereas one assigns the Chinese bowl to late Ming (17th cent.), another suggests an early Ming dating (12th cent.). In either case it must be remembered that imported articles, probably highly valued by their owners, can only provide an estimate for the *earliest* dating of the stratum in which they are found ; they can give no check whatsoever on the latest dating limit.

It is therefore unfortunate that the idea has been spread in the unscientific press that, on the doubtful evidence of certain imported beads, I suggest a date as early as 600–900 A.D. for the oldest buildings at Zimbabwe and elsewhere. I have suggested no such thing—the quality of my archaeological evidence is not sufficiently clear to warrant it, though on other lines of evidence it seems probable enough.

My statement was to the effect that, contrary to the experience of Dr MacIver, only two fragments of Celadon glaze were found at Zimbabwe, but these are older than those unearthed previously. They are said by the British Museum to be Sung period (10th–13th cent. A.D.)

⁸ *Medieval Rhodesia*, pp. 42–3.

A full report on the beads has not yet been made, but Mr Horace Beck, to whom they have been submitted, states that they include types from South India, definitely considered to be not later there than 900 A.D. Other beads are similar to some found in the remains of villages in Malaya and Borneo, where they may belong to a period as remote as 600 A.D. But Mr Beck would be the first to urge caution in the matter of dating beads : the study of them is still in its infancy, and a type of bead, once it has become popular, is likely to be repeated and copied for generations. In any case the date of a bead (were this certain) in its home of origin is not necessarily its date in its home of import. All that may with reasonable regard for the probabilities be said on the existing evidence is that the building of stone structures in Southern Rhodesia—it must be remembered there are more than 500 of them—appears to cover a period of considerable length ; that the earliest cannot on any available archaeological evidence be placed as earlier than the 10th cent., and may be any amount later ; and that the latest cannot, on any available archaeological evidence be placed as earlier than the Ming period, 12th cent., and may be—and almost certainly are—as late as the 16th cent.

It is inconceivable to me, now I have studied the ruins, how a theory of Semitic or civilized origin could ever have been formulated. Every detail in the haphazard building, every detail in the plan, every detail in the contents, apart from imports, appears to me to be typically African Bantu. It is also inconceivable to me how a theory of antiquity, in the sense of Oriental archaeology, could ever have been formulated by observant people. The structure of the buildings is such that not one stone would be standing on another in a period reckoned in millennia and not centuries.

I have only touched on the evidence in crude outline, but I affirm, both in my own work and on that of my predecessors—Bent, Hall, MacIver, Douslin—that we have no evidence whatsoever for a date of great antiquity. Had Dr Randall MacIver never set foot in Rhodesia, had a medieval date never before been hinted at, my own excavations, concentrated as they have been on this question of the earliest date for the earliest intact deposits, would have led me to within a century or two of the same conclusion.

The German Excavations at Ctesiphon

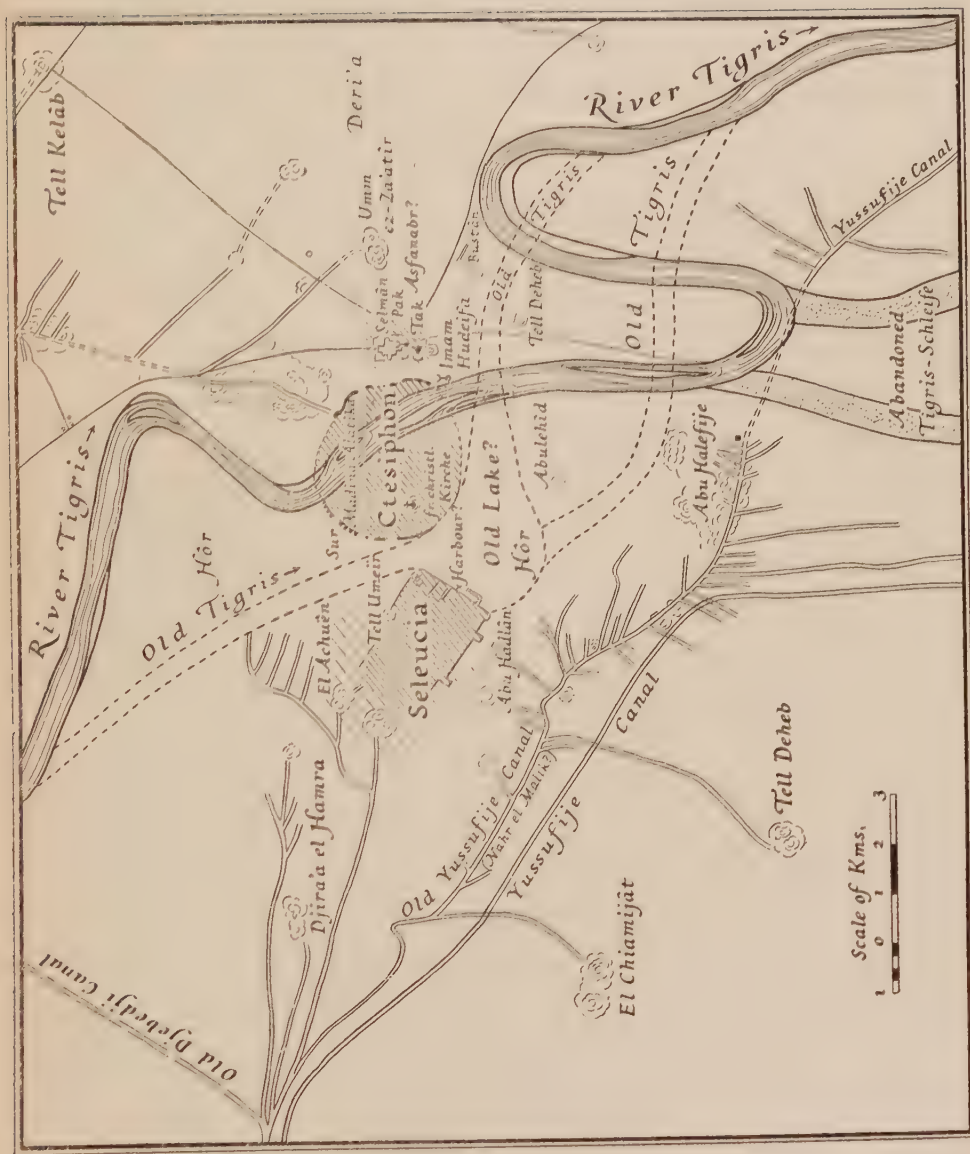
by OSCAR REUTHER*

IN the autumn of 1928 a German archaeological expedition began to excavate the site of Ctesiphon, the capital of the Sassanid empire. Two years earlier the Deutsche Orientgesellschaft, which had successfully made excavations at Babylon, Assur, Farah and Warka, was informed by the Iraq Ministry of Education that the help of German archaeologists in carrying out research would be welcomed. The Society thereupon agreed to co-operate with the *Notgemeinschaft der Deutschen Wissenschaft* in the excavation of Ctesiphon and Seleucia.

Hitherto archaeological interest in Iraq had been almost entirely confined to the Babylonian and Assyrian worlds. Then, after the importance of Samarra had been made clear through the investigations of Viollet and of Gertrude Bell, the German scholars Sarre and Herzfeld began excavations there which revealed early Islamic art and culture. But no one had attempted to obtain evidence from sites in Iraq as to the thousand years in which the conflict raged on the Euphrates and Tigris between East and West, between the Orient and Hellenism. Any inquiry into this period, so important for the development of eastern culture, must obviously select for excavation Ctesiphon and Seleucia. These were the two principal cities of the enormous empire which was centred in Babylon during this time ; the one an outpost of conquering Greece in the East, the other the centre of Sassanid royal power, which opposed the Hellenism of the West with all the oriental traditions of the ancient Iranian kingdom. Both were alike symbolic of the two conflicting worlds which faced each other on the Tigris. Moreover the sites might be expected to furnish traces both of the intermediate Parthian period and also of the transition to early Islamic art and culture.

Apart from such questions, the historical importance of these towns promised topographical enlightenment. The ruins on either bank

* Translated by Roland G. Austin, Glasgow University. The transliteration of proper names here and on the map is that of the original version.



MAP OF THE DISTRICT ROUND CTESIPHON AND SELEUCIA

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of the Tigris had been investigated and photographed by Herzfeld, who had gone beyond his predecessors in his inferences from the material available for surface-observation. Also, Maximilian Streck had tried, from sources in ancient and Arabic literature, to form a topographical picture of Seleucia, Ctesiphon, and the Islamic cities which succeeded them. But excavation alone could give a definite basis of information.

In 301 B.C., when Seleucus I (Nicator) won the battle of Ipsos in the wars of Alexander's successors, he secured possession of Asia Minor, and about the same time founded Seleucia as the capital of his kingdom, which stretched from the Mediterranean to India. The city stood on the Tigris, 60 kilometres north-east of Babylon. It was not long a royal residence, for Seleucus himself soon moved the seat of his government to Syria. But its position was favourable for development, standing as it did at the entrance to the Nahr al Malik, the royal ship-canal joining the Euphrates and Tigris. It became the chief entrepôt of Asia Minor, displacing Babylon, then fast decaying, and outstripping Syrian Antioch, though this city was the actual capital, and in Pliny's days, the first century after Christ, it still ranked with Rome and Alexandria themselves. In the middle of the second century B.C. the Parthian Arsacids robbed the Seleucids of the eastern part of their empire; and although Seleucia at first showed no signs of friendliness to its new overlords, and indeed made common cause with Antiochus VII, they allowed its Greek constitution or *politia* to remain, and permitted its own laws and prerogative of minting. They also decided not to reside in Seleucia or to garrison it, but put a fortified camp opposite on the east bank of the Tigris, at the village of Ctesiphon, so as to ensure supervision of the city. This camp later became the royal residence. Thus from the middle of the first century B.C. these two cities faced each other—the Greek centre of commerce with its motley population, and the Parthian garrison-town with its royal residence. Some of Seleucia's importance vanished when the Parthian kings decided to punish it for its seven-years' revolt from 36 to 43 A.D.; as far as was possible they checked its trade, and soon afterwards a rival city sprang up near it named Volagesocerta, after its founder Volageses I. Yet in the second century A.D. Seleucia must still have surpassed Ctesiphon in importance and size, until in 165 the legatus Avidius Cassius, leader of Lucius Verus' forces against the Parthians, razed it to the ground. Ctesiphon now had no rival, and though it too was laid waste by Avidius Cassius and for a second time in the Parthian war of Septimius Severus, it was chosen again by Ardashir the first

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Sassanid to be the capital of the new Persian empire. Under his rule and that of his successor, and especially under the two Sapers and Chosroes I Anusharwan (531-79), the city spread far beyond its original boundaries. Beside the old city, the Madina al atiqā, where the palace of the Arsacids was replaced by the 'white castle', a new quarter arose named Asfanabr with its famous palace Iwan-i-Khosrau, and other towns grew up round it. Ardashir had already founded on the west bank of the Tigris, quite near to Ctesiphon and on the site (it is supposed) where Seleucia had once stood, the city named after him Weh Ardashir. The native Semitic population of this town also called it Coche, and under the name Bahurasir it existed until the 13th century. Not far to the south of Ctesiphon Chosroes I built a new city, named Weh-Antiokh-i-Khosrau, where he settled the exiled people of Syrian Antioch after conquering and destroying that place in 540 A.D. In 636, after the battle of Kadesiya, the Sassanid royal power fell, and Ctesiphon was conquered by Arabs under Sa'd ibn Abu Waqqas. By this time a whole group of cities, said to be seven in number, and known collectively by the Aramaic name Makhzoze or Madinatha, lay in this region; afterwards the Arabs called them al Mada'in, or 'the cities'. Later the name al Mada'in was applied particularly to Ctesiphon itself, which lost its proud position after the Moslem conquest and ultimately became quite unimportant with the rise of Basra and Wâsit, and especially after Baghdad had been founded. Finally, the once flourishing district was entirely devastated by the Mongol hordes under Hulagu and Timur.

The site of Seleucia and Ctesiphon, hitherto assumed as definitely located, lies some forty kilometres to the south of Baghdad on either side of the Tigris, which just above this has many windings. Ctesiphon was thought to lie somewhere on the left bank near the imposing ruin of the Taq-i-Kisra, the 'Arch of Chosroes'. Near the mosque-tomb of Salman Pak, the legendary Barber of the Prophet, there lies the village of the same name in the middle of an approximately rectangular field of ruins extending northward from the Taq-i-Kisra. This village has grown considerably in recent years. Immediately to the west of this there is a second block of ruins, enclosed by a curving wall known to the natives as al Tuwaibah, and bounded on the south-west by the Tigris. Besides this there are mounds of ruins along the course of an ancient canal bed leading from the north towards Salman Pak and another canal, long since dry, running further to the east. But to the south, in the loop formed by the bend of the river, these ruins are less in evidence, for today much of the land has once more been put under cultivation. There can

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be seen, however, the ruins of a piece of wall forming the two arms of a right angle, the longer of which extends for 700 metres. This was once a rectangular enclosure, and the Tigris has washed away the other two sides. About a kilometre to the south-west of this wall (called by the Arabs Bustan al Kisra, 'the garden of Chosroes') there rises a square-shaped mound of ruins measuring 150 metres on each side, now known as Tell Dahab, 'the golden hill', or Khaznet al Kisra, 'the treasure-house of Chosroes'. The whole area, occupying some 20 square kilometres, is taken by Herzfeld to include the different settlements of Ctesiphon. In particular he locates in the region round Salman Pak the quarter called Asfanabr, where, according to Yaqubi and Ibn al Khatib, the Iwan-i-Khosrau stood. He thought to find the old city of Ctesiphon, the Madina al atiqā, in the portion enclosed by the wall Tuwaibah and bounded on the west by the Tigris.

Now the ancient sources are at one in stating that Seleucia lay over against Ctesiphon on the opposite bank, and therefore it was taken for granted that the ruins on what is today the west bank of the river are those of the Greek city. Especially noticeable here are the massive ruins of a wall, called es Sur by the natives, which sweeps round to the south-west from the Tigris. Rich had already realized that this wall formed a semicircle, and that another piece belonged to it which lies two kilometres further south, bending back from the Tigris. (Since he observed this, the river has washed away the greater part of the wall and the ground behind it at this point). The whole area enclosed by the wall and the Tigris is about 450 hectares. Today it is mostly cultivated, but a long mound is to be seen rising ten metres above the plain, known as Dja'aret al Baruda, 'the hill of the powder-mill'. A little patch of ruins lying by itself towards the west, with clear traces of brickwork, is called Qasr bint al Qadi, 'the castle of the Qadi's daughter'.

When the expedition reached the spot in 1928, serious doubts at once suggested themselves as to the accuracy of the identification of the ruins, hitherto unquestioned, with the respective sites of Seleucia and Ctesiphon. West of what had been claimed as the city-wall of Seleucia there lies a piece of low ground which for some years was an impassable swamp, but has now been drained and put under cultivation. The lines of a former river-bank are clearly recognizable, and beyond this rises Tell Umair, part of the extensive field of ruins where excavators from Michigan University have been engaged since 1927 in locating the ancient Akhshak-Upi, the Opis of the Greeks. From the lie of the land and from the pottery on the surface we were able to

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conjecture as early as October 1928 that the drained swamp was actually the former bed of the Tigris, and that the river must have altered its ancient course, and, flowing farther eastwards, must now pass right through Ctesiphon. All doubts were removed by a survey made by Dr Bachmann. The site which up till now has been taken as that of Seleucia is really the larger part of the old city of Ctesiphon, the *Madina al atiqā*. The walls of *es Sur* and of *Tuwaibah* belong to the oval enceinte enclosing it. Seleucia really lies on the other side of the old river-bed—a rectangular Hellenistic city, whose central part only was built and laid out like this, having later been surrounded by extensive suburbs. The eastern corner of the rectangle lies very close to the oval enceinte of Ctesiphon, and quite possibly there stood here, where the cities were nearest together, the stone bridge over the Tigris connecting them which is mentioned by ancient authorities. At the south-east side of the rectangle of Seleucia are indentations, which may have formed harbours. Within the city the two main streets, crossing in the middle, are plainly visible.

The Tigris seems to have broadened out towards the south, which corroborates a statement made by Malalas that at the confluence of the Tigris and the royal canal made from the Euphrates there was a lake. As Rich and Herzfeld had already conjectured, this canal, the *Nahr al Malik*, is doubtless to be identified with the *Yusufiye* canal, recently filled again with water, along which there are massive ancient dams and ruins of settlements. The latter were inhabited up to early Islamic times, as we know from pottery found there, and afterwards were apparently deserted. However, we cannot claim priority in discovering the real site of Seleucia. Mr O. G. S. Crawford informs me that Wing-Commander Insall, then stationed in Baghdad, had already (in 1928) detected the true state of the case from the air. The air-photograph taken by him plainly shows the network of streets in the ruined city near Tell Umair, crossing at right angles in the style of Hippodamus. Meanwhile the excavations made by Michigan University support the independent evidence of air-photography and land survey. The true position of Ctesiphon and Seleucia is now accurately ascertained.*

* These conclusions are firmly established, but the exact sequence of events is still rather obscure. We were flown over the site of Seleucia by Wing-Commander Insall on 17 October 1928, but he had already seen the rectangular plan many months before and identified it as Seleucia. A fresh air-photograph of the site was taken last December by the R.A.F., and we hope to publish this shortly, together with notes on it. We are in communication with Professor Waterman, of Michigan University, and with investigators at Baghdad who have kindly promised assistance.—EDITOR.

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This discovery meant a disappointment to us in so far as we now saw ourselves confined to Ctesiphon. On the other hand, important results ensued from the abandonment of the old erroneous views, as the basis for the topography of Ctesiphon and Seleucia as well as the cities which succeeded them was now completely changed. The old sources must now be reviewed from a new angle of criticism, both the ancient accounts and the work of Arabian geographers. As the excavations proceed further light will be thrown on the twin cities, whose picture is not yet clear in all its details, and we may hope that Americans and Germans will work together in friendly rivalry to solve this important problem.

The purpose of our work at Ctesiphon, as we supposed, was to make as comprehensive a preliminary survey as possible, and we did not aim at the complete excavation of any one point, *e.g.* the palace near the Taq-i-Kisra. We were more anxious to probe as many points of the site as we could, in order to know for certain what really was there and whether intensive operations were likely to prove fruitful. The field is large enough, for the area of Ctesiphon proper with its suburbs and surrounding settlements comes to more than 30 square kilometres.

One of our chief objectives was obviously the ruin near the Taq-i-Kisra. There is a tradition, of which the Iraq Arabs have never lost sight, that the gigantic barrel-vaulted hall (plates I-II) was the throne-room of the Sassanid palace, the Iwan-i-Khosrau. A different view was held by the European travellers of the 17th and 18th centuries, for they took the building to be a temple of the Sun, or else the work of a Roman emperor, misunderstanding the meaning of the name still locally used. However in 1796 the French doctor Olivier visited Iraq, and again recognized the ruin to be what it really is, the great hall of the royal palace in Ctesiphon. He likewise concluded that the building with the two wings of its façade, then both still standing, could not have formed the whole structure. But not until 1907-8, when Herzfeld made a plan of the mounds surrounding the Taq, was any effort made to reconstruct the inner palace. He based his attempt on these ruins and upon the still visible traces of vaulting and walls. He could reach no definite conclusion from the ground immediately surrounding the Taq, which was exceedingly flat. Excavation alone could bring further knowledge here, and in particular throw light on the ground-plan of the building. Hopes were also entertained of finding remains of those decorations so extravagantly described by the Arabic writers. Naturally the condition of the ruins still standing called for great caution, especially that of the

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south wing of the façade which was leaning forward. In 1888 the north wing of the façade collapsed, with the front arch of the hall, and since then further dilapidation has occurred. New fissures have formed, part of the vaulting has fallen, and a portion of the north wall of the hall has become detached. To prevent any extension of the subsidence, which, as Mr Clay has ascertained, is due to badly laid foundations, the Department of Public Works made efforts to strengthen the southern wing of the façade by means of a supporting concrete wall. Meanwhile we must wait for time to test the durability of this expedient.

In these circumstances we could not think of any complete excavation of the ruins in the narrow compass of the Taq. We could only venture on soundings with narrow trenches, and these were carefully filled in after photographs had been taken. In this way we were enabled to ascertain the ground-plan of the southern part of the building of Iwan, and of the groups of rooms adjoining the great hall on the west; and, although we found the whole building far more ruinous than we had expected, we succeeded in obtaining starting-points for a reconstruction. The walls have been broken down, leaving scanty remnants of the foundations, so that we could only trace the trenches where the latter lay. In the angle formed by the southern wall of the great hall with the façade still standing, there was an L-shaped vaulted corridor, enclosing two sides of a rectangular chamber of 17.43 metres by 34.60. The springers (*Ansätze*) of the vaulting in the corridor can still be seen in the existing building. The eastern arm, which ran behind the façade wall, was covered by a single round-arched barrel-vault, the northern arm along the south wall of the great hall by four short barrels on cross-arches parallel to it. The chamber itself, which this corridor separates from the great hall, was also barrel-vaulted, and we discovered a broken fragment of the vaulting on the ground. On the west side of the great hall there was a series of smaller rooms, and at the back of these an enormous chamber of the same breadth, that is 25.85 metres, and 38.05 metres long; no doubt this had been likewise vaulted with one barrel. This was entered by the door in the end wall of the great hall, from which one had to pass through a cross-passage 3.52 metres wide and an ante-room 9.25 metres long and 6.72 wide, at whose sides lay smaller rooms. At the southern extremity of this group of chambers, which at once connected and separated the two chief apartments of the palace, there was a square-shaped room which the walls show to have been 17.20 metres broad; this is equal to the breadth of the southern side-chamber of the great

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hall, and it must have had a domed vault. By extending the line of the walls as ascertained by excavation, assuming also that the arrangement of the whole is symmetrically repeated on the north side, we can reconstruct a ground-plan as follows. Placed axially, one behind the other, are two rows of three barrel-vaulted elongated rooms, of which the middle ones are distinguished by greater breadth and height and are separated by corridors from those at the side. A belt of smaller rooms on the transverse axis intersects the structural design, which forms a compact edifice on a rectangular ground-plan. This reconstruction may perhaps appear bold in view of the scanty nature of definite evidence from the excavations, but it is a necessary assumption, and the continuance of the work will show if it is substantially correct.

Before any excavation was begun, we could assume from the ground-relief that opposite the Taq with its winged façade there must have stood a corresponding building on the eastern side of a great court. Herzfeld was responsible for this conjecture, and we have confirmed it by tracing the line of the foundations. As on the west side of the court, a wide barrel-vaulted hall opened out between two façade-walls. So far we have not ascertained any more. The intended symmetry of the whole plan is clear: two structures, built on like principles, stood over against each other, between them enclosing the great court of the palace with their lofty frontals opening in the middle in wide parabolic arches. In essentials this plan was later adopted on a smaller scale in the side-courts of the early Islamic palace of Ukhaidir. Further excavation will tell us how the court was bounded on the north and south, though we still have to solve the problem as to which side contained the main entrance to the palace.

So far we have made clear the ground-plan of a part only of the vast lay-out of the palace of Iwan, but nevertheless a very important part. Further operations will give us definite information of the whole, for it is now clear at what points we must begin.

We have found nothing of the façade decorations. Such architectural parts as capitals, architraves (*Gebälke*), archivolts, etc., were executed in stucco upon the brickwork, as is shown by some scanty remains of plastering still clinging to the south façade. In process of time the stucco has peeled off and crumbled into dust. The remains of the fittings of the interior are also very slight, as the palace was systematically looted even before it was partially dismantled in Abbasid days. Anything that could be used at all for new buildings was removed, and in particular the costly mural facings of coloured marble and the

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glass-mosaic of the vaulted ceilings, of which only fragments were to be found among the débris. Where we could trace the floors, they were brick-paved and overlaid with repeated coatings of gypsum ; without doubt this is a poor substitute for marble flooring, which from our finds in other quarters of the palace we must assume once existed. Clearly, even before the palace was partially dismantled by the orders of the Abbasid Khalifs, it was used by the Arab conquerors for their own purposes after being despoiled of its valuable treasures.

To the south of the Taq, some 100 metres distant, there rises a mound of ruins forming a rectangular enclosure, called by the Arabs of today ad Dhabai, ' the hyena hill ', or Harim al Kisra. Its regular shape led Herzfeld to infer that it concealed some building belonging to the palace. Particularly noticeable were two narrow ridges running out towards the Taq, apparently continuing the side-lines of the massif. These enclosed a basin between them, and the eastern one lies in alignment with the façade of the Taq. Excavation has shown that there is a wall two metres thick, made of sun-dried bricks, supported by buttresses on its inner side, which encloses in the shape of a U the rectangular core of the hyena hill and the two ridges running out towards the Taq. There is a second wall made of burnt bricks lying close along it on the outside as if to cover and strengthen it. After a careful investigation of the eastern ridge we found a similar wall of baked brick on the inside as well, but here it is some distance from the sun-dried brick wall, and, like it, has supporting buttresses. To the north of the hyena hill this wall of burnt bricks bends westward, and doubtless must have continued on the west side of the hill and along the western ridge. The space between the walls of the ridges and the rectangle of the hyena hill was filled up with earth, thus forming a terrace some 60 to 100 metres in length, whence two arms stretched northward towards the Taq about 16 metres in breadth and 70 metres long. A building stood on this terrace, but the details of its configuration are not yet certain. All we can say is that the structure on the hyena hill was rectangular in ground-plan, and we may further conjecture that it had a courtyard in its northern part. Probably the two arms of the terrace formed narrow wings like galleries, enclosing between them a deep-sunken court. The approach to the main terrace southward must have run from this court, probably by means of an outside staircase surmounting a rise of some 6 metres. The building has been as completely destroyed as the portions of the palace of Iwan which abut on the Taq. Its walls have been broken down right to the base of the foundations, so that we

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could only ascertain their course by following the foundation-trenches ; the wall of sun-dried bricks, however, has been allowed to remain, as it contained no potential building material. But it seems as if its destruction followed immediately on the spoliation of its treasures, which will explain why we have found much more of them here than in the Iwan.

November brought heavy rains, so that we could pick up splinters of coloured marble, little cubes of bright glass, and fragments of shaped stucco on the surface of the eastern ridge. By means of cautious scraping on its eastern slopes, to no great depth, we came upon large quantities of stucco, which must have covered the outer frontal and have been thrown away as valueless at its dismantling. Most of the fragments are part of large circular discs one metre in diameter, with a round hole in the middle and with a beautifully-drawn pattern recurring again and again on both sides alike. The design was a six-rayed rosette-shaped palmette, framed in an astragal ; these palmettes are of a pleasingly Hellenistic style, and in their spandrels are heart-shaped figures. To these rosette-discs, which thus could be viewed from either side, were attached little pillars made of bricks and decorated with gypsum. Evidently the discs and pillars formed balustrades. They can clearly only have been used to crown the flat terrace-roof of the building. Along with the fragments of the rosettes were parts of figures in relief on stucco, two heads and limbs of horses with bridle and saddle ; the head of a bearded man wearing a pointed, grooved cap ; the hindquarters of a wild boar with the bristly mane along the back ; portions of a large beast gorgeously caparisoned, probably an elephant ; two of the puffs of curls so characteristic of Sassanid court fashions. (Plate v). These fragments leave no doubt that the relief depicted hunting-scenes, like those in the fine rock-reliefs of the cave walls in Taq-i-Bustan. That is shown by the wild boar and by the hinder foot of some ungulate, probably a fallow deer. The same is suggested by one of the two horses' heads, which is outstretched from a very thick neck and has a hanging bridle ; this can only have formed part of a galloping horse, for Sassanid art always represents standing or walking horses as heavily reined-in, whereas when galloping they are shown with outstretched head, as for instance in the battle-scenes of the reliefs in Nakch-i-Rustam or in hunting pictures like the one in the right-hand relief in the rock-grotto of Taq-i-Bustan. We cannot tell whether our stucco relief formed a continuous frieze or single independent pictures. It is curious that all the fragments found in quite widely-separated spots belong to animals running towards the right, which rather points to a frieze.

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As in the reliefs at Taq-i-Bustan, the king was drawn on a larger scale; this is proved by the two puffs of curly hair. We cannot determine whether the reliefs were done in colours. They must have been exposed to wind and weather for a long time before their destruction, and then have lain among the *débris* before being covered with earth, so that all trace of painting would have disappeared. Further fragments of these stucco-reliefs will be afforded by the later excavation; their existence in Ctesiphon is vouched for by the Arabian historians. When the conqueror Sa'd chose the 'white castle' for his own quarter and turned the hall into a mosque, he ordered the gypsum-figures of men and horses to be preserved, and thus for a time restrained his iconoclastic warriors who had worked their will in other buildings of Ctesiphon.

The victors set more value on the inner decorations of the building, which consisted of glass-mosaic and coloured marble as in the palace of Iwan. We have only found the meagre remnants left about by the looters, scattered cubes of glass—not merely blue, yellow, red, bright and dark green, but also blackish ones overlaid with gold leaf—and occasionally pieces of mosaic still intact, though in most cases only with the stucco bed from which the glass had been carefully scraped. Another species of mosaic work consisted of tiny thin plates of marble, cut lozenge-wise or in a curving outline, to which seem to have belonged little tablets of coloured glass and small discs of mother-of-pearl. These mosaics must have formed the decoration of the upper part of the walls, and of the ceiling, which was doubtless vaulted. The plinths were covered with marble tablets, of which we were able to secure large fragments variously coloured. Thicker tablets of marble served for the flooring, as is shown by their worn condition.

This terrace-structure to the south of the Iwan, with its peculiar wings enclosing a sunken court and with its exterior decorations in relief, arose from the reconstruction of an older site of quite different appearance and serving quite another purpose. The wall of sun-dried brick, with its interior projecting buttresses, originally stood by itself. This is seen from the fact that there are still traces of the carefully-polished gypsum decorations on its outer side. Moreover, if it had been erected contemporaneously with the covering wall, it would have had no constructive utility. On its inner side it supported a deposit of earth, which sloped like a scarp towards a court. Thus the original lay-out consisted only of this court, some 50 metres in breadth, enclosed on three sides in the shape of a U by the dyke made by the supporting wall and the earth deposit with its sloping flanks. To the east it was

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closed by the supporting wall. To the west a narrow staircase or talus on the outside of the wall led to the crest of the dyke, while a row of chambers lay outside against its short southern limb. At a distance of 140 metres from the southern limb was a wall of sun-dried brick, bending at its ends towards the south, with four openings in it ; this closed the oblong court, and on its north side, towards the Iwan, there was attached a small forecourt of similar breadth. The whole resembled an ancient sports-ground, a stadium or hippodrome, which led us to imagine something similar here, such as a ground for polo, so beloved of the Persians, or, as seems more probable to me, for the courtiers to hunt in. Such a hunting-ground is shown in one of the above-mentioned reliefs in the grotto of the Taq-i-Bustan, a rectangular enclosed court with platforms for the spectators. The scarps falling towards the court from the wall would be supports for such platforms, which would be made of wood unless there were brick tiers of seats. On the crest of the dyke, which enclosed the three sides of the court, there must have been a building which can only have constituted a narrow gallery or hall, like those crowning Roman theatres or amphitheatres. We found fragments of brick pillars with projecting half-columns, which belong to the architecture of this gallery. It must have been adorned with marble tablets and glass-mosaic, of which a few remnants lay on the old scarps. This decoration seems to have been carefully removed when the arena was destroyed to make way for the terrace-building. The value attached to such articles is shown by the tradition that Khosrau I took away from the Syrian cities which he conquered all the marble work, pillars and mosaics of the buildings for the decoration of Weh Antiokh, the city which he founded near Ctesiphon ; while Khosrau II, on the advance of the Romans of the east, sent to Ctesiphon and concealed there all the marble decorations of the Christian churches in the threatened districts.

So far the excavations have given us no clue to the date of the palace buildings in the shape of inscriptions or stamped bricks, so that a relative date only is possible. My view is that the arena first stood by itself in a game-preserve in front of the city. When the Iwan was erected, this was abandoned and its circumvallation used to build up the terraces of a subsidiary palace, the purpose of which is probably correctly explained by its modern name, Harim-al-Kisra. This interpretation seems likely from its position apart from the main palace, whose enormous apartments were used for state ceremonies. The similarity of the foundations of this subsidiary palace suggests that it was contemporary with the

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Iwan, and also its bases are at the same level. The building of the great chamber in the western portion of the Iwan clearly came later, for its foundations at least are of a different technique.

Who was responsible for the building of the Iwan? Against the view commonly held before him, Herzfeld maintained that it must have been Sapor I (241-272), adducing stylistic considerations besides the evidence of Ibn al Muqaffa; he pointed out in particular that instead of the archivolts which a later period of architecture would certainly have used, horizontal architraves (*Gebälke*) rest upon the half-pillars of the Taq façade. However, the Syrian and Mesopotamian architects of the 6th century were fond of using horizontal architraves over the wall-pillars, as may be seen for example in the apse of the church of Qalb Lozeh. A later period of construction is further suggested by the arched and friezed archivolt of the Taq, which could not possibly have been found in any 3rd century building, but occurs again in the apsidal arch of the church of Qalb Lozeh and in the early Islamic Ukhaïdir. In my opinion this goes to show that the name Taq-i-Kisra is the rightful one, and that it is the throne-room of the palace built by Chosroes I Anusharwan (531-579), the Iwan-i-Khosrau. This is confirmed by the style of the stucco-reliefs which adorned the terrace-building, though these reliefs cannot be adduced as evidence for the date of the buildings as their decorations may naturally belong to a later period.

Beyond the narrow circuit of the city we found ornamental stucco in several spots on the surface, chiefly in two places. We scraped away a little of the soil on the mound of ruins to the north of Salman Pak, al Ma'arid, and on another site to the east of the Taq, known locally as Umm es-sa'atir. Apparently we have here the ruins of little garden-palaces or villas, along the canals that have obviously been dry from Sassanid times. In both cases the finds were interior decorations, in particular wall-panelling of plaques and finely-drawn moulding showing considerable charm, but of a later period than the stucco of the terrace-building south of the Taq. The chief motifs are wing-palmettes on square tablets, with decorative inscriptions in Pehlevi within circular frames of pearl, garlands of flower-tendrils, imbricated cornice-moulding (*Schuppenwulste*) palmette-friezes, meander-work, animals in scroll-work, etc.; they partly agree with what is considered as early Islamic. The stucco must date from late Sassanid times. We found early Islamic stucco ornaments, again in surface-finds, together with pottery, glass-ware and other things, very close to Salman Pak, and

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especially in a dwelling-house which Dr Kühnel was able to excavate fairly completely. To judge by the finds, this house belongs to the 9th century, and suggests that the inhabitants of the city of al Mada'in, the later successor to Ctesiphon, lived luxuriously enough. The stucco-work was still partly attached to the walls, or else, where it had been pulled away, lay on the brick floor of the rooms and courts. For much of it we must look for parallels in the stuccoes of Samarra, while part gives an impression of greater antiquity.

We have then actually fulfilled the hopes entertained of discovering in Ctesiphon decorative materials which provide links with Islamic art. There seems much promise in the further excavation of these sites in which for the most part we could only carry on surface scraping, and we may expect similar finds in other places. If as a result there can be traced the unbroken sequence of decorative types in the district which is most important for the development of Islamic art, the labour of these smaller investigations will be richly rewarded.

On the west bank of the Tigris the most valuable results seemed likely to follow from the examination of the large group of mounds known as Dja'aret al Baruda. The pottery lying on the surface showed that a settlement still existed here in the 13th century, which we at first assumed to be Bahurasir, the successor to Weh Ardashir. But when we cut through the hill, we saw that the strata were entirely Islamic, and we were also disappointed in our hopes of finding the Sassanid city in the adjacent plain to the south. Here too the Sassanid stratum lies very deep, and is covered over with layers of mud and sand, caused by the repeated floodings of the Tigris. Meanwhile our deep excavations had a valuable result, the discovery of Islamic pottery from the early period up to the 13th century.

Further south we were more fortunate. Here, adjoining the massif of the Dja'aret al Baruda as far as the fragment of city-wall that still remains erect, there is a wide range of ruins, fairly flat though clearly delimited. Drs Heidenreich and Wachsmuth uncovered here a burial-ground of Parthian times, their attention being attracted by the surface pottery and in particular by fragments of brown glazed earthenware sarcophagi. The tombs are of brick, and barrel-vaulted, like those at Assur, Nuflar and other places in Iraq which are known to be Parthian. They have been repeatedly used, to judge from the two which we have examined. One of these contained numerous skeletons and, lying by them, earthenware vessels, lamps and small glass bottles of the Parthian type familiar from Babylon and other excavations in

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Iraq. Near the graves was also found a marble statuette of a recumbent woman, showing traces of colouring, a little earthenware pot with silver coins from an Arsacid mint, and other objects. It would appear that this Parthian cemetery within the enceinte of Ctesiphon was known to be such in Sassanid times, and that on religious grounds it was not built over.

Chief among the ruins on the western side was the little mound known to the Arabs as Qasr bint al Qadi. Herzfeld has already remarked



FIG. 1

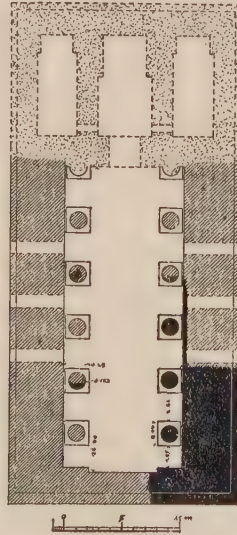


FIG. 2

upon the still standing masonry of the wall, made of large bricks 31 centimetres square. Drs Wachsmuth and Heidenreich removed the later Islamic crust and revealed a monumental building which soon proved to be a Christian church. (Fig. 1). The whole formed an aisleless nave roofed with a barrel-vault supported on pillared walls. The rectangular pillars of the nave stand a little in front of the walls and are joined to them by small parabola-shaped arches, of which one was exposed before the excavation and taken by Herzfeld to be the opening of a drain. Thus enlarged rectangular niches are formed, roofed in by semi-cupolas. The barrel-vaulting sprang from the inner line of the pillars; it roofed the building with a 9-metre span and in collapsing filled it up with its massive bricks. This

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type of chamber is frequent in Sassanid architecture. In Mar Tahmazgerd half-columns are set in front of the pillars connected with the wall, and the same may be seen in the great hall in early Islamic Ukhaïdir. In Sarvistan the barrel-vault is carried on pairs of pillars, which stand close up to the wall and leave a narrow corridor, like the rectangular pillars of our churches. To the east, a tripartite group of chambers adjoins the nave, in the middle the altar-space and at its sides the slightly narrower pastophoria; all these chambers are joined to the nave by relatively narrow doors, and are likewise widened by niches, while they were doubtless enclosed with the barrel-vaulting. The altar-space, like the side-chambers, is cut off straight, with no apse; on its east wall it has a step, in front of which we discovered in the floor four round recesses, forming a square, where the pillars of a ciborium must have been sunk. On the ground before this step there was the débris of paving laid down in Islamic times, and underneath was the draped figure of a man, made of painted stucco in high relief, and broken into several fragments. (Plate VI). Unfortunately, head, hands, and feet are missing. The figure is about three-quarters life-size, and can hardly represent any other than a saint, probably the dedicatory saint of the church. We found with it pieces of ornamental framework, likewise coloured and in part gilded, half-pillars with shafts of zigzag pattern, palmettes, and other things.

On further investigation we found that this was not the first church; an older one had stood there, with a narrower nave and with thick rounded pillars on square bases standing close to the side-walls, instead of the later rectangular ones. (Fig. 2). From Dr Wachsmuth's observations we may conjecture that this earlier church was not completed, but lay unfinished, and that the later one with its greater breadth was built over it. Such a history can easily be understood if we remember the troubled times through which Christianity lived under the Sassanids, and the constant alternation of persecutions and temporary favour.

We cannot as yet tell the age of the church. If we can date the character of the script, a *terminus post quem* is given by an ostrakon with an inscription in Syrian, calling upon the god of Abraham, Isaac, and Jacob. It was found in the altar-space, under the floor of the later church. The shape of the stucco framework of the statue is similar in part to what we found in the terrace-building south of the Iwan. The treatment of the saint's drapery closely resembles that of the two victories in the spandrels of the arch of Taq-i-Bustan. All this suggests a later period, and we are of the opinion that the second church

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dates from the middle or the end of the sixth century. Tradition tells of Chosroes II (591-628) that under the influence of his Christian wife he built a church to the Virgin and dedicated another to St. Sergius. So far we cannot tell which of the different churches we have excavated at Ctesiphon, and therefore are ignorant of the identity of the saint.

In conclusion there are the city walls. The massive ruin, called by the natives *es Sur*, rising from the plain like a small chain of mountains, was taken to be the city wall of Seleucia before we began to excavate. We could only investigate a small portion of the wall, and had to be content with ascertaining the methods of its construction. Our previous conjectures were confirmed. The wall corresponds with what we know of Sassanid fortified buildings, in particular with the city wall of Dastajird. It is built of sun-dried bricks, mortared with clay, about 10 metres thick and set with semicircular turrets 9.30 metres in breadth and projecting for the same distance. The curtains are 38 metres long. Both turrets and curtains are divided in their upper portions by flat niches sunk between broad pillars, probably closed by arches and thus forming a blind arcade. Beneath this row of niches there is a scarp sloping steeply in the foreground, made of piled-up earth and strengthened by a layer of sun-dried bricks. We could not ascertain if there was a fosse. Afterwards we also investigated the ruins of the city-wall on the east bank of the Tigris, which today bears the name of *al Tuwaibah*. Here too we could make out semicircular turrets, smaller however than those on the west and with shorter curtains. But the uniform character of both lengths of wall seems to be quite certain.

We can now summarize the most important results of our expedition's first campaign. First comes the very valuable topographical information as to the true site of the two cities Seleucia and Ctesiphon; secondly, we have increased our knowledge of Sassanid palace buildings, and in addition have made quite new discoveries concerning the Christian church architecture and plastic art of Sassanid times; further, we have learnt more of their methods of fortification, and, not least, have gained insight into the development of Islamic architectural decoration and pottery. We could not complete all the investigations begun, and many questions have even yet not been considered. Thus there are still many problems awaiting solution from the excavations planned for the coming season (1930-31).

Woodbury

TWO MARVELLOUS AIR-PHOTOGRAPHS

by O. G. S. CRAWFORD

THE plates facing pages 385 and 452 of this number represent the culminating point of archaeological air-photography. They were taken by Pilot Officer Jonas, R.A.F., between 11 and 12 o'clock on the 16th of May 1929, using a K.2 filter. The sites lie half a mile apart on the hill called Woodbury, less than a mile south of Salisbury Cathedral, between the Blandford and Bournemouth roads. Woodbury is three miles south of the aerodrome at Old Sarum, from which they were taken and where I found them when taking over obsolete negatives on behalf of the Ordnance Survey (where they now are). They were taken during pin-pointing, as part of the ordinary routine of training ; but that these particular sites were selected for practice is due to the keenness of the photographic section at Old Sarum, which has been closely associated with the development of this branch of air-photography from its birth. (It was the Old Sarum section that obtained many of the first archaeological air-photographs ever taken, including those of the Stonehenge Avenue, in 1921, and of the Celtic fields round Winchester, in 1922). Regarded merely as photographs, from a technical standpoint the negatives are as nearly perfect as possible. The wonderful definition of the crop-marks is probably due partly to the use of a K.2 filter, partly to the dry spell during the first half of 1929.

The larger of the two enclosures (plate opp. this page) is Woodbury, which I discovered in 1924 (*Wessex from the Air*, plate VIII, page 80) ; but this is a far better representation of it. Not only does the black band of the surrounding ditch come out very distinctly, but the interior of the camp is seen to be covered with black spots and lines. The black spots are of two kinds, large and small ; the large blobs are doubtless the sites of huts ; they are mostly circular, and some are surrounded by a faint narrow black line, representing possibly a drainage ditch. The small black spots must represent small pits and post-holes, serving doubtless many different purposes. On the western side a rectangular enclosure may be faintly discerned. In the

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middle of the north side is a large dark blur (corresponding to a shallow depression on the ground). The entrance may have been here, and if so the dark line leading north-eastwards from it across a field of wheat may be a prehistoric hollow track-way—it is in any case plainly contemporary with the camp, where it ends.

Just outside, on the south-west near the road and between the two ricks, is a beautiful little double circle. It is too small, apparently, for a disc-barrow, and must remain a puzzle till it is excavated—an easy task.

The larger (central) portion of the interior was under barley when this photograph was taken. The field on the west (where the ditch disappears) was under grass, and that on the east under wheat. Note that barley registers far better than wheat, and grass not at all. The field on the north also contained wheat; its lighter colour may perhaps be due to later sowing.

I visited the site on 13 October. There was nothing whatever to be seen except on the western side, where the broad shallow depression of the ditch is plainly visible. Here too the remains of the white chalk rampart can also be seen, though far less plainly than on the photograph. There seems to have been an outer rampart also here, and it is just the place where one would expect it. There were hints of such on the air-photograph I took; but the western field both then and subsequently (in 1928 when some other R.A.F. photos were taken) has unfortunately been planted with an unsympathetic crop.

The whole of the interior is covered with pot-boilers, and I found part of the base of a pot of New Forest ware. One would naturally attribute the construction of the camp to the people of the Iron Age, but there is no evidence one way or the other.

The discovery of Woodbury in 1924 was a pure accident. At the same time I observed, about half a mile to the east, a *smaller enclosure* with a slighter ditch. It was, however, much less striking, and we did not photograph it. It is merely recorded in *Wessex from the Air* (pp. 80–1). The magnificent photograph which forms the frontispiece (facing p. 385) of the present number presents it, therefore, as virtually a new discovery. The honours are divided between Old Sarum on the one hand and a crop of barley and oats, starved by drought, on the other. The enclosure itself consists of an irregular, very plainly marked black line, continuous except at a point on the north-east, where a gap, about 62 feet wide, represents the entrance. From near by diverge two curious narrow horns, like the antennae of some giant insect. But the

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most striking feature of the photograph is the fact that it shows a mass of black spots within the enclosure. These occur nowhere else and are without any doubt the vestiges of permanent habitation. They consist, as before, of a number of small dots and some larger blobs. The latter, however, are here strung loosely together, forming a group. One may reasonably infer that they represent the site of the main group of huts.

The absence of pits and hut-depressions outside the enclosure is very striking—more so than on the other photograph, though also to be observed there. This is the first time that air-photography has proved capable of recording by means of crop-marks the presence of these prehistoric hut-sites ; and it shows that, given favourable conditions, we may hope for great things in the future. The bulk of the area of the enclosure, as well as the ‘ antennae ’ and the sites about to be described, was under barley which, *on certain soils*,* is thus proved to be a better ‘ developer ’ than oats, wheat or grass. We may expect to find similar dots and blobs amongst the many air-photographs stored at the Ordnance Survey, now that we know from this instance that they can be relied upon. Many such settlements may have existed in the open, without a protecting bank and ditch round them.

A small segment of the enclosure encroaches upon a field of oats on the south. Here the ditch seems wider. It is of irregular width throughout, expanding in places for a short distance ; the two ends at the entrance are also slightly expanded.

At the time of my visit the whole area was covered with stubble. I could not even see anything on the ground to enable me to identify the site of the enclosure or its contained markings. The farmer whom I met on the spot, with some of the labourers, told me, however, that they knew the ‘ ring ’ well and had regarded it as the relics of some former field-enclosure. They could see it in the spring. The area is covered with pot-boilers.

Outside, in the NW corner of the plate, is a small four-sided enclosure. The ditch was evidently very narrow, since the black line, though quite distinct, is much fainter. The two eastern angles (of the enclosure) are sharp and the other two are rounded. There is a gap in the north side, and two black spots set close together within the area. South-west of it a smaller rectangle is just discernible ; it is divided into two unequal halves. It suggests some sort of a building. The dark line beyond is an old hollow field-track, still in use and aiming at Britford.

* But not on all ; see ANTIQUITY, I, 469 (The big circles near Dorchester, Oxon.).

WOODBURY

I have not, in the above brief account, exhausted the many points of interest revealed by these remarkable photographs. (I have not, for instance, said much about the wandering lines that can be seen ; one of them runs directly from Woodbury to the smaller enclosure). They are valuable not only in themselves but for what they foretell. They are the heralds of innumerable queer resurrections. They assure us that no site, however flattened out, is really lost to knowledge. Scotsmen in particular will welcome their message ; for certain lowland regions, such as the Vale of Strathmore and the coastal plain near Edinburgh, where oats and barley predominate, are admirably suited to this method. Not only will many of General Roy's Roman camps come back to life, but others doubtless will be discovered, particularly along the line of the known Roman roads. One can imagine no more fascinating pursuit for the owner of a private aeroplane.

The Beginnings of Egyptian Civilization

by GUY BRUNTON

EVER since the first discovery of predynastic cemeteries in Egypt by Sir Flinders Petrie at Naqada in 1895 it was realized that the beginnings of civilization in the Nile Valley had not been found, and that remains of earlier stages might come to light. For nearly thirty years, in spite of active and more or less scientific excavation in all parts of Egypt and Nubia, no earlier settlements or cemeteries were discovered which could then be classed as older than predynastic. Flintwork of palaeolithic man abounded, especially on the high desert; and the flints of the Fayyum, in great variety, were recognized as mainly neolithic. But the ancestors or forerunners of the predynastic people seemed to have left no other trace. Probably the advance of the cultivation with the gradual rise of the mud level had obliterated all that they had left behind them. Steep slopes of desert are obviously covered less quickly than the flatter areas. The eastern desert fringing the cultivation in the Badari district of Middle Egypt presents a succession of more or less high spurs intersected by dry watercourses or *wadys* running down from the cliffs to the fields. It is here, and so far here only, that the much sought for precursors of the predynastic Egyptians have been revealed to us. They have been called Badarians to distinguish them from the well-known predynastic people (Amratians, Gerzeans and Semainians) with whom they are closely akin both in culture and physical type.

In the autumn of 1922, when the expedition of the British School of Archaeology in Egypt was placed under my direction, I chose the site of Qau in the Badari district on the east bank of the Nile for various reasons. Chief among these was the wish to rescue what might be left of the predynastic antiquities from the clutches of the native tomb-robbers who for some time past had been supplying the dealers of Cairo with these objects. The preliminary visit which we paid to the site was not encouraging. Everywhere in the great cemetery in the centre of the bay at Qau were rifled graves; heaps of sand thrown out by the diggers met our eyes wherever we looked. But the pottery here was not

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predynastic, and it was evident that the early cemeteries lay in other directions. We eventually found four in different parts of the bay, and to the north of it at Hemamieh. These were moderately fruitful but added little to our knowledge. Here and there however we had picked up sherds, hand-made and black-topped like the predynastic, but with the surface finished off with a comb causing a pleasing rippled effect. The connexions of this pottery were quite a mystery; and the plot thickened enormously when we found an isolated grave, or part of one, containing a flat-bottomed bowl of fine black-topped brown rippled ware, a beaker-shaped vase of black pottery incised with patterns filled in with white, a four-handled vase of pinkish ware, and a flint knife, all of forms which were new to us, which we therefore could not date, but whose nearest affinities were certainly early.

A few badly plundered graves containing rippled pottery lay in the flat ground at the foot of the Qau cliffs, and odds and ends were turned up at Hemamieh. But it was not until the next season, 1923-1924, that the main discoveries were made which enabled us to place the Badarian culture in its proper historical position. At Badari, an hour's walk north of Hemamieh, fragments of rippled pottery, lying on the desert surface quite thickly in places, were found by Mr Starkey; and we accordingly camped at the most promising spot near the village of Sheikh 'Esa where we spent two seasons, the work being still on behalf of the British School. Though the connexions of the Badarian culture with that of the Amratian or early predynastic were fairly obvious, it was Miss Gertrude Caton-Thompson's very meticulous examination of the sherds and flints in the stratified village rubbish a little north of Hemamieh which gave the first scientific demonstration that our rippled pottery and the objects associated with it were really, as we had indeed supposed, the work of men who preceded the predynastic people.

Close to Sheikh 'Esa lay two or three cemeteries of the Badarians, much plundered it is true, but yielding us a quantity of pottery and other antiquities of various kinds. These have enabled us to visualize fairly fully the character and mode of life of the Badarians. The complete details of this are published in *Badarian Civilisation*.

After an interval of two years mainly occupied in the publication of the 1923-25 results, both prehistoric and dynastic, I decided that more work ought to be done in the Badari district to see if these early remains existed further north of Naga Wissa, the village which formed the limit of the previous concession. As no public support was forthcoming the expedition was financed privately, the British Museum lending its name

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and giving facilities for the exhibition of objects.¹ The expedition having necessarily to be on a small scale, it has taken two seasons to examine the stretch of ground from Deir Tasa to Khawaled, with a central camp at Mostagedda. Thus we have so far searched a stretch of desert some twenty miles long from Nauwara on the south to Khawaled on the north. This coming winter we shall see what the next six miles from Khawaled to Matmar will provide for us ; but once more our activities will be limited for financial reasons.

The work of the last two years has consolidated our knowledge of the Badarians, helped us to fill in the outlines, and given us a number of objects. The Cairo Museum now has a representative collection of pottery, flints, slates, ivories, beads, and other objects of this remote civilization ; and there is still much left for other museums. But the chief result is the discovery of a rather different culture, which, as far as we can see at present, is, once more, older than any other known from graves in Egypt with the possible exception of Dr Junker's recent discoveries at Merimde or Quibell's at Heluan. This new cultural phase we have named Tasian from the village of Deir Tasa where the graves were first located.

Although the relative date of the Badarians would seem to have been demonstrated in the most complete way possible, there are still one or two who seem to think that nothing in Egypt can be older than the well-known predynastic. Mr Firth in his carefully considered review of *Badarian Civilisation* (ANTIQUITY, 1929, p. 243) expresses the view that the case may not have been made out, and that the Badarians were perhaps later Nubians or kindred folk living alongside the Egyptians, just as the pan-grave people did in the second intermediate period, or like the Bisharin or Beduin of the present day. But the pan-grave people are easily datable from the purely Egyptian objects that they used ; and he would be a bold man who would contend that the Beduin now living in the Nile Valley do not use anything at all of native Egyptian manufacture, though they do keep up their own crafts to a great extent. Yet in all the Badarian graves that I have examined, probably some five or six hundred, there is not one single Egyptian object of any period with the exception of one or two pots which are early predynastic and not associated with typical Badarian objects, and also with the exception of the glazed steatite beads which run right on well

¹ The EDITOR has erred in his reference in ANTIQUITY (1928, II, 355) to the work of the British School, which is now engaged in Palestine.

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into the predynastic period. Even the stratified deposits at Hemamieh do not satisfy Mr Firth, who suggests the possibility that the villagers, having for some reason run out of their own pottery and implements, raided neighbouring cemeteries, carefully choosing the earliest first and having a rooted objection to anything wheel-made or dynastic, though there was plenty of this to be had close by.

This year we have fresh evidence of date. At Mostagedda there is a wide occupation site with a deposit of ash and organic refuse, sometimes three or four feet deep. In this deposit are sherds and flints, which, though not in great quantities, are characteristically Badarian. A considerable number of graves were found to have been sunk in this stratum, packed closely together, often quite undisturbed, with the matting coverings intact, with the filling consisting of the ashy debris, and with the ash and in some cases sherds under the bodies. Obviously the burials were placed there after the village had been abandoned and forgotten. These graves are easily dated by the objects found in them. Cross-lined pottery, flint knives, and beads are all of Amratian (early predynastic) types, and there is no trace of anything of later date. If we had never found anything elsewhere this would have been sufficient to show that the Badarian culture was earlier than the Amratian.

When we come to the absolute dating of these cultures we are faced with the difficulty of estimating their duration. For the predynastic period, with its two or three distinct changes of style in pottery and other objects, a length of time has been suggested by different inquirers which varies from 500 to 2000 years. If we take into consideration the fact that development in primitive times is slower than in later ages, and that the changes between the Amratian, the late predynastic, and the proto-dynastic cultures are very marked, we may not be far wrong in assuming a period of something like 1000 years for the whole predynastic age. If we take 3400 B.C. as a more or less agreed date for the beginning of the First Dynasty, we must then place the beginning of the Amratian period at something like 4500 B.C.

To go further back and to give a definite date to the beginning of the Badarian culture is to become involved still deeper in conjecture. So few remains of these people have been found, and those in such a restricted locality, that we cannot yet form an idea of the length of time during which the Badarians flourished. The date 5000 B.C. has been suggested ; but this is not to be taken as more than an indication of the fact that the Badarians preceded the Amratians, and is given to satisfy those who clamour for figures of some kind as an aid to memory.

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There is, however, some exterior evidence of date. The flints of the Fayyum, so similar in many respects to the Badarian implements of the Nile Valley, are datable by the lake levels with which they are associated. Miss Caton-Thompson and Miss Gardner give a rough estimate of 5500-4500 B.C. for their Fayyum A and B cultures (*Geographical Journal*, Jan. 1929, plate). We may also consider the strong probability that the climate of the Nile Valley was wetter in Badarian times than it is now. The presence of large tree roots in many places high up on the desert spurs, sometimes at the same level as the old village sites, is evidence of this. If we connect this wet period with the latest phase of the European ice-ages we are led to a date rather subsequent to 6000 B.C.

It is yet early to say how much of the Nile Valley was occupied by the Badarians. So far their villages and cemeteries have been discovered in the Badari district only; but occasional objects have turned up, such as typical palettes from Maḥasna and Naqada and from Luxor shops, and sherds of brown black-topped ware from the predynastic town rubbish at Hieraconpolis. This distribution is closely the same as that of the 'cross-lined' pottery, characteristic of the Amratian cemeteries. Up till now no Badarian or Amratian graves or villages have been reported north of the Badari district. It may indicate that the two cultures entered the Nile Valley in the same way. This is, however, taking into consideration the pottery and palettes only, and the similarity between much of the Badarian and Fayyum flint work must not be lost sight of.

The Badarians were an agricultural and pastoral people, living very much like the Beduin of the present day, forming settlements of small size, generally close to what are now dry *wadys*. Although they were not nomads in the strict sense of the word, they do not seem usually to have occupied any one site for a long period. Most of the deposits of village rubbish, consisting of ash, charcoal, and organic refuse, and containing sherds and flint flakes, are very shallow, sometimes only a few inches in depth. The groups of graves are small and scattered, hardly worthy of the name of cemeteries. Now and then a depth of rubbish extending to three feet or so indicates a more prolonged occupation; and the presence of pottery vessels of considerable size and at the same time of thin fragile ware, shows that they were more or less settled folk.

We have no hut-circles sunk in the ground such as we find in predynastic times; the Badarian house seems to have been more in the

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nature of a shelter, formed perhaps of skins or matting stretched over wooden frames. The stumps of poles have been noticed occasionally in the villages. A number of deep pits, often narrow at the opening and widening out at the base, have been found near the village sites. These are quite unlike the graves, never contain burials, and are certainly store pits, in most cases probably granaries. It has been suggested that agriculture was not introduced into Egypt before the middle predynastic age ; but we now know that the Badarians had emmer wheat, for it has been found in their graves under circumstances where it cannot possibly have been intrusive.

Of firing there was no lack, judging by the vast amount of charcoal found ; this is an indication that brush-wood was abundant, and affords additional evidence that the climate was wetter then than it is now. The profusion of matting in the graves gives us an idea how plentiful reeds and rushes were along the Nile banks. We can imagine that what is now the cultivated plain with its smiling crops was then an expanse of reedy swamps, filled with hippopotami and crocodiles, and awaiting the beginnings of its reclamation at the hands of the energetic predynastics who succeeded the Amratians.

The Badarians had no lack of food ; they kept oxen, sheep, and goats ; game was plentiful on what is now the high desert. Birds were perhaps hunted with throw-sticks. Fish were caught either in nets or with hooks made of shell or bone. Emmer wheat was cultivated in small patches, quite possibly on what is now the low desert. Cooking was done in the open, small hollows being made in the ground in which were stood the large wide-mouthed pots of rough ware, with firing packed about them. The family would gather round to enjoy the meal of porridge or stew. The large square-bowled spoons or dippers made of ivory with the handles ending in the form of animals' heads may have been used on these occasions to fill each man's small bowl. The herds, besides providing food, were a source of the skin garments worn by the majority. Finer skins were provided by the gazelles or other antelopes killed in the chase. Weaving however was well-known, traces of textiles being found in many graves ; but this was used sparingly in the form of kilts, head coverings, and even possibly handkerchiefs. Of their ornaments we have a great variety. The hair, which was shortish, brown, and wavy, might be bound with a string of brightly coloured Red Sea shells. In it was sometimes placed an ivory comb headed by the figure of an animal. One tiny stud of green stone has been found still fixed in the skin of the nose, and studs of pottery, occurring occasionally,

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may have been placed in the lobes of the ears. Round the neck were strings of shells, large and small beads of stone, often glazed, bone, ivory, and even copper, but not of faience. On the necklace was sometimes hung an amulet in the form of an ibex head or a hippopotamus. One large bead of alabaster or ivory was rarely worn at the neck or wrist strung on a leather thong; armlets and bracelets of thick ivory are frequent, ornamented in a few instances with inset beads of bright blue colour. Men who could afford the luxury wore belts composed of thousands of these steatite beads covered with blue glaze. It seems probable that they were traded from elsewhere because they are the only examples of glazing used by the Badarians, and the fine piercing of the holes implies the use of metal tools which the Badarians do not seem to have possessed in any quantity. To add to their attraction, and also perhaps as a guard against disease, men and women alike painted round their eyes with green malachite paste; and it is possible that they also used rouge.

It seems likely that the pieces of closely plaited rope-work on wooden poles which have been found in the neighbourhood of Badarian graves, are fragments of their beds. They certainly had pillows, of linen or fine leather, stuffed with chaff; these have been found in graves placed under the heads.

We have no implements which we can definitely call weapons such as mace-heads, though doubtless both arrows and stone axes could have been used for warlike purposes. In fact the Badarians seem to have been a peace-loving people; there is a large proportion of aged skeletons, and no sign of injuries. This however might be accounted for by the fighting, if any, taking place far from home. There seems also to be an excess of males; but this again may be due to the women's graves having been more plundered for their ornaments. Apart from the tending of cattle and the tilling of the soil, the people busied themselves with mat-making, basketry, leather-work of various kinds, rope-making, a certain amount of rough carpentry, ivory carving, bead-making, probably weaving, and a great amount of pottery. It was in this last activity that they excelled, for the best of their wares are finer in quality and finish, if not perhaps in form, than any that was made later. To arrive at this fineness and thinness, especially of the rim, which they so much desired, they employed a comb of some kind to scrape away the excess of clay before it became thoroughly hardened in the sun. This scraping produced a series of finely rippled grooves which were pleasing to the eye, were carefully elaborated, and used as a decorative finish.

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The surfaces of the finer wares are usually of a neutral brown colour in the earlier times, and red later. Almost all the best pots have an irregular band of lustrous black round the mouth; this is the feature which is so common in the predynastic wares. The shapes are mainly bowls of various kinds with a very thin lip, pleasant to drink from. The rim is very rarely turned out, as it commonly was in predynastic times. There are very few cases indeed of handles of any kind, and scarcely any decoration. Almost the only method of ornament was the careful scratching, with a dull point, of designs on the black interior surface of the red polished bowls. These designs are all derived from plants and are more or less conventional (fig. 1).

Although we can be sure that most, if not all, of the pottery was of local make, we find that, though there was no scarcity, still it was used

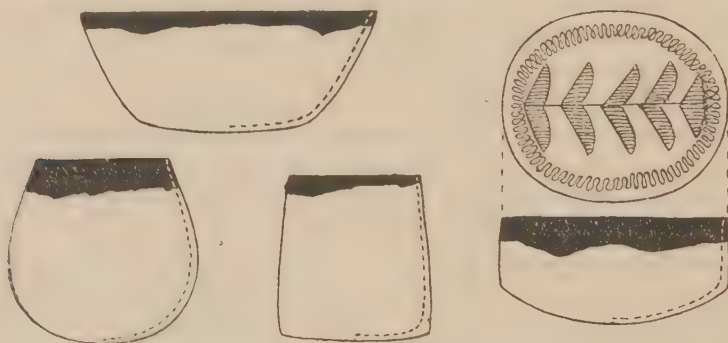


FIG. 1. BADARIAN POTTERY FORMS. Scale 1:6

Drawings by Mrs W. M. Brunton

in a thrifty manner; for even the roughest vessel when cracked was not tossed into the rubbish heap, but carefully mended. A crack was either plugged with a pinkish cement, or a row of holes was bored on each side for lashing the edges together by means of thongs or grass fibres. Sometimes a new base was made for a pot and fastened on in this way.

The Badarians do not seem to have ever buried their dead under or close to their dwellings. A piece of ground where the soil was easily dug was selected, generally on the same desert spur as the village but nearer the cliffs. In the same way as the predynastics and as the later Egyptians, they tried to make the grave as closely like a habitation as possible, and the dead were laid to rest in the natural attitude of sleep, the head resting on the sloping side of the grave, or sometimes on a

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pillow. The deceased was clad in his everyday garments ; and either he wore his usual ornaments or they were placed where he could easily reach them. With him were his food bowls, sometimes empty and ready for use, sometimes containing a small supply of food and drink. Close to his hand were his slate palette and pebble for grinding his eye-paint, his bone or flint tools, and collections of odds and ends, pebbles, crystals, and so forth, the use of which we cannot always now understand. Under him was his reed mat, and over him was a roofing of matting, sometimes supported on transverse sticks. Occasionally a kind of hamper of sticks and matting was made in imitation, probably, of his village hut. The finding of cooking pots *in situ* in the cemeteries leads us to suppose that the relatives sometimes had their meals at the grave-side as they do at the present day ; but it may be that these pots belong to a village the site of which was forgotten and reused for a cemetery. However this may be, it is certain that the Badarians believed in a life after death ; and we can go a little further and see how this life was in some way connected with the west, for the face of the dead man was almost always to the setting sun. If his head was placed to the south as it generally was, then he was laid on his left side ; if it was to the north, then he was on his right. Of his personal everyday religion we know nothing except that, as might be expected, he had a belief in the efficacy of amulets such as figures of hippopotami, and that certain animals were revered ; for we find that gazelles and oxen were sometimes ceremonially buried in graves of their own. A belief in a primitive mother-goddess is thought by some to be indicated by the female figurines placed with dead persons.

Of the Tasians, who seem to have preceded the Badarians, we cannot yet venture to say much. Their remains are few and poor, and insufficient for the safe advancing of theories. Certain points differentiate them rather sharply from their successors. The first thing that drew special attention to the graves was, as usual, the pottery. The typical form is a jar having a small flat base, wide mouth, and a rather sharp angle at the bulge (fig. 2). The ware is greyish with black patches, and shows a vague and coarse rippling which is vertical. In all these respects it differs from the Badarian. There is sometimes, but rarely, a definite irregular black band round the rim. One polished red rectangular bowl with vertical rippling seems to be Tasian ; if so, it is the only instance so far of Tasian pottery which is not grey or black. The palettes are of alabaster or limestone, more or less rectangular, without any notches. Such are never found in Badarian graves. One slate

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palette only is Tasian ; it is plain like the early Badarian. Of beads so far we have none except one small cylinder of ivory and one made from a segment of bone-shaft. Strings of Red Sea shells are however common. The few skulls that we have in good condition are much rounder than the Badarian or the predynastic ; they have broad faces and square jaws, quite unlike the later type (fig. 3). The graves, strangely, are often wider and deeper than the Badarian, with a niche in the side to receive the pot.

Of particular interest is the association of these people with the 'beaker' pots with flaring mouths in black ware ornamented with incised designs filled in with white. So far none has been found in a Tasian grave, but many fragments and two more or less whole have come from village sites (fig. 2). In no less than five different places these

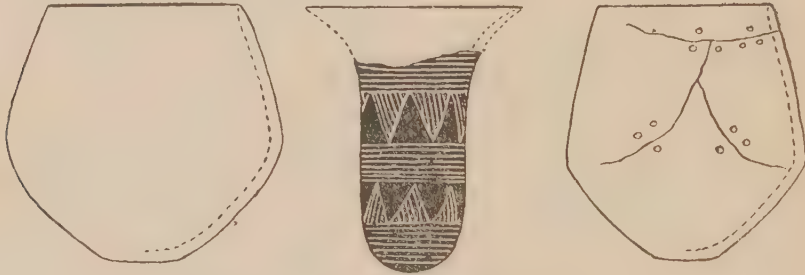


FIG. 2. TASIAN POTTERY FORMS. Scale 1:6
Drawings by Mrs W. M. Brunton

fragments have been found with polished celts, either of hard limestone or greyish green igneous rock. One Tasian grave, typical in its form and its pottery, quite undisturbed, was found by Dr Sami Gabra last winter near Deir Tasa. Under the matting were two limestone celts. We can thus connect the Tasians with the celts and also with the associated beakers, a connexion we had always surmised, but of which there had so far been no proof. The celts and the beakers have not been found associated with definitely Badarian objects, with one notable exception. The very first Badarian grave that we ever found (at Qau in 1923), quite isolated under a dynastic cemetery, contained a poor and rough example of the beaker together with a very fine rippled Badarian bowl of a type and ware which we are inclined to place very early in that period. This grave may indicate an overlap of the two cultures.

It may be premature to say definitely that the Tasians preceded the Badarians, but all the evidence points in that direction. Their culture

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in all respects is more primitive ; what connexions we have are with the early Badarians ; their typical objects are not found at later times, as far as we can judge ; and we have found what may be a Tasian grave underlying a Badarian. All we can say with perfect certainty is that the Tasian graves are much older than the Third or Fourth Dynasty ; for the first burials that we discovered were underlying well-dated pot burials of that period.

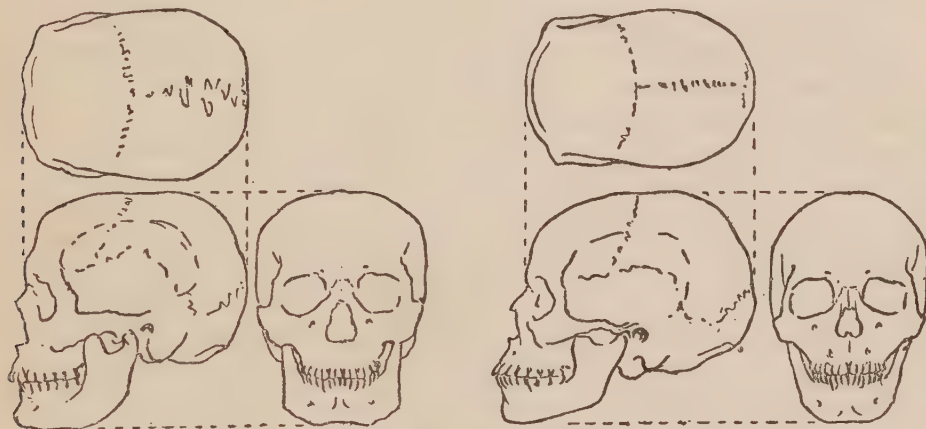


FIG. 3. TASIEN AND BADARIAN SKULLS CONTRASTED. Scale 1:6

Drawings by Mrs W. M. Brunton

We have so far no linen, and no specimens of grain. But a gritstone grinder found in a grave may imply that they were agriculturists. As however the remains have not been fully studied, and as further discoveries may throw more light on this new and most interesting phase of early Egyptian civilization, it is premature to theorize about these people who may be found to have affinities with the early inhabitants of North Africa, the Iberian Peninsula, and other parts of Europe.

Notes and News

AIR-PHOTOGRAPHS FROM CAIRO

The ancient mosque of Ibn Tulun, which lies in a squalid quarter in the south part of the walled city of Cairo and is illustrated in plate 1, has a three-fold claim on our interest. It is of enormous size, as the photograph plainly shows ; it is the oldest mosque in Egypt which preserves its original form and aspect ; and it is of considerable importance in the history of architectural development. It was founded in 868 by Ibn Tulun, who in that year had become Governor of Egypt. He was the son of a Turkish slave in Baghdad, but had been well educated in that city, and in the neighbouring town of Samarra he received some military instruction. The significance of this last fact has only been realized in recent years. For a long time Ibn Tulun's great mosque in Cairo was regarded among architectural critics as an important landmark. But discoveries and excavations in Mesopotamia and other parts of Iraq, made during the last thirty years or so by archaeologists of several nations (among them the late Miss Gertrude Bell), have revealed the existence in that country of buildings from which the general design and many of the most remarkable features of Ibn Tulun's mosque were evidently derived. Nevertheless it remains one of the great buildings of a period, approximately contemporary with the reign of King Alfred in England, when great buildings were only too scarce ; and it may still be regarded as a prototype, though not the only prototype as once was thought, of the churches with pointed arcades that began to appear in Normandy and in England centuries later.

Many mosques had been built long before 868, but, except for the group in and near Samarra, already mentioned, few of them now survive in their original form. Those at Mecca and Medina have been altered out of all recognition, while the ' Dome of the Rock ' at Jerusalem is considered by many authorities to be a building designed and built for Muslims by Christians—a very arguable point. But the mosque of Ibn Tulun is of the ' congregational ' type then already adopted at Damascus and in Mesopotamia ; that is, it provides for the ceremonial devotions of a very large congregation of people. Hence it differs from

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the 'mausoleum-mosque' or the 'college-mosque' so often built in later days, and certainly differs fundamentally from the 'Dome of the Rock'. The total area of the site occupies some $6\frac{1}{2}$ acres,* the buildings form a block about 500 feet square, and the inner courtyard (*sahn*) measures almost exactly 100 yards in each direction. It is surrounded by arcades which give the shade that is so welcome in the East. The arcade facing south-west (that is, towards Mecca), is deeper than the others, and forms the sanctuary. In the centre of its south-west wall, where a little raised cupola throws a shadow on the flat roof (see photograph), is the prayer-niche (*mihrab*) which indicates to worshippers the direction of Mecca, towards which they face during their devotions. The sanctuary and the three remaining arcades are formed of brick piers with pointed arches, and the flat roof above them is of mud resting on beams of sycamore. This roof-construction had been adopted in Mesopotamia as well as in the first mosques in Arabia, and the pointed arches are now known to have been of Mesopotamian origin. The outer and inner walls of the arches have curious zigzag battlements of brick, and are pierced with pointed-headed windows filled with delicate plaster lattices or tracery. Originally all the brickwork was covered with fine white stucco, brilliantly coloured and beautifully modelled. Some of this work still remains, as well as some delicate carved woodwork on the beams of the ceiling, where there was a long running inscription from the Koran, in decorative Kufic characters.

Almost in the centre of the north-east arcade, opposite the *mihrab*, is a rather squat minaret, of a peculiar spiral form recalling the *ziggurat* of the Babylonian ruins. This can be seen in the photograph, which also shows the domed building (*fawwarah*) of later date which stands in the middle of the courtyard and replaced an earlier building containing a fountain. On three sides of the mosque proper can be seen an open court (*ziyada*), which served as a narthex or approach to the main place of worship. I have described this mosque at length elsewhere.†

The other photograph (plate II) shows a portion of the so-called 'Tombs of the Caliphs', more correctly the Qarafah or Eastern Cemetery, which lies in the desert a few hundred yards outside the north-west corner of the medieval city-wall of Cairo. This cemetery should not be confused with the so-called 'Tombs of the Mamelukes'

* Larger than Trafalgar Square which is only 5 acres.—EDITOR.

† See *Muhammadan Architecture in Egypt and Palestine* (chapter III), by M. S. Briggs. Oxford, 1924.

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on the south of the city. Both these colloquial English names are misleading, and the 'Tombs of the Caliphs' contain the mausolea of some of the chief 'mameluke' sultans who ruled Egypt throughout the later Middle Ages, together with the tombs of their principal emirs or military nobles. The only feature of importance in this photograph is the block of buildings which stands almost in the centre of the view. This block in fact consists of two very large buildings: on the north the *madrasah* (collegiate mosque) and mausoleum of Inal, who was sultan of Egypt from 1453 to 1461; and south of it is the *madrasah* of the emir Qurqumas, commonly known as the 'Amir Kabir' (= great emir). The former building was a vast convent with numerous cells for its members. Much of it is now ruined but the fine dome over the mausoleum with its fluted enrichment is still standing, and there is also a lofty minaret of moderately successful design. The convent of Qurqumas is another large building with its dome and minaret surviving. Together the two convents form a magnificent group, the more effective because of their desert surroundings, interrupted only by the numerous mean Muslim tombs that lie near them on two sides.

MARTIN S. BRIGGS.

THE AEROPLANE AND EGYPTIAN ARCHAEOLOGY

Mr R. Engelbach, Keeper of the Egyptian Museum, Cairo, sends the following interesting note on air-surveys in Egypt:—

The value of air-photographs has long been recognized by archaeologists, both in England and abroad, as an aid in recovering the plans of ancient constructions. Indeed, in countries where the remains consist of brick walls or earth embankments now covered with cultivation, it is often only by air-photography that any efficient idea of their plan can be obtained.

The Royal Air Force in Egypt, working in conjunction with the Survey Department of the Egyptian Government, has been systematically surveying the Nile Valley, and two series of photographs are now in the Survey archives. The first (survey no. 1, with 687 negatives) was taken in 1920 at Flood Period and the second (survey no. 12, with 619 negatives) at Low Nile.

During the 1920 survey, when the party was at Luxor and Aswân, I suggested to one of the pilots that he obtain permission to take a photograph of the Aswân obelisk, which I had recently cleared, and of some of the Theban temples which lie along the edge of the cultivation.

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Permission was at once granted, and the interest of the photographs led the Director General of Antiquities, M. Pierre Lacau, to recommend the Public Works Ministry to negotiate with the Royal Air Force for a complete survey of the Luxor, Karnak and Theban areas. The result was two magnificent mosaics, which, apart from their general interest, had a twofold value: they revealed several archaeological features, as, for example, the limits of the Palace of Amenophis III at Thebes, which were previously imperfectly known, and they supplied irrefutable evidence in the local courts against the inhabitants, who are continually trying to encroach on the Antiquity Department's lands.

The Theban mosaics were soon followed by those of El-'Amârna, Edfu, El-Kâb and Dendera, the first clearly showing up the plan of the temples and houses of the immense capital of the Heretic King Akhenaten, much of which is imperceptible on the ground.

The next series of photographs taken for archaeological purposes covered the great pyramid plateau from Abu Rawâsh to Dahshûr, and they are proving of great value to the parties who are excavating in this important area.

Nowadays, in Egypt, the rules against civilian flying in R.A.F. machines are extremely strict; the good old days, when an occasional 'joy-ride' could be obtained, being definitely over. During the past winter, however, I was fortunate enough, through the courtesy of the R.A.F. and the good offices of the Editor of *ANTIQUITY*, to fly from Cairo to El-Badâri, just south of Asyût, and back. We went over the western desert and returned along the eastern. For reasons that will appear, I could have wished that the flight had been over some of the Delta sites, but the experience was of interest, since my Department was anxious to ascertain whether any new surveys would be of value and whether, in certain of the old town-sites, tracks could be distinguished from the air which might reveal the situation of necropolises or other indications of interest far out in the desert.

From my point of view, the flight was not very successful. No indications of the nature referred to were observed, and, seated in the back of a fast machine, wedged tightly with books and stores and with very little protection against the wind, I was unable to consult my large-scale maps and had to rely on memory. A further misfortune was that radiator trouble compelled us to return most of the way at 6,000 feet, from which any observation of value is impossible. The flight, as far as it went, served to show that with the exception of the area between the Pyramids of Lisht and those of Illahûn and Hawâra

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and a few sites in the Fayûm no further air-photographs are needed for the moment in the area covered, unless excavators require them for their own particular concessions.

The air-photographs most urgently needed are undoubtedly those of the Delta 'tells'. A *tell* is the result of the construction, for thousands of years, of mud-brick houses on the ruins of their predecessors. In some, the process still continues, while others, such as Tell Fara'in, the ancient Buto, stand grim and deserted, covering hundreds of acres and rising to a height of 60 feet or more above the surrounding fields.

Very little excavation has been carried out on the Delta *tells*, though in ancient times some of them were towns as important and wealthy as the better known sites of Upper Egypt. The soil-level is many metres higher than it was in Pharaonic times, and if one excavates on the present soil-level it is no unusual thing to find that the objects discovered are of Ptolemaic date or even later. To excavate a *tell* for early remains would mean descending deep below water level by the use of powerful pumps, a costly and by no means healthy procedure. The British School of Archaeology in Egypt, under Sir Flinders Petrie, carried out such excavations in a mild way for several seasons in the Ptah Temple of Memphis, and the statuary and sculptures found some 2 metres below subsoil water-level well repaid the expense incurred. If a part of Buto, for example, were excavated level by level, objects of outstanding interest would surely come to light, though possibly only after several years of barren work.

Most of the old towns were surrounded by huge brick walls, a thickness of forty feet being common. Though the walls are being steadily destroyed by the *fellahin* for use as manure for their crops, many are still traceable, those of Mendes (Tell Tmai) still rising high above the level of the ruined city. Here the temple wall can also clearly be followed. It is in this connexion that an air-survey is so urgently needed. Though the walls of Athribis (Benha), Saïs (Sâ al-Hagar), and Heliopolis have been destroyed to such an extent that it is doubtful whether air-photographs would even reveal their course, those of Xoïs, Tanis, Mendes and Buto and a dozen less important sites would well repay the time expended on an air-survey.

Flying-time is not cheap for a civilian enterprise and the R.A.F. has many activities. I have suggested, however, to those in command, the possibility of permitting observers who are out practising air-photography to take as their subject the Delta tells. I have also furnished indications showing the position of those which are of the

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greatest interest. I am certain that had I done this a year ago my Department would be in possession of photographs of most of them.

Following is a list of the aerial surveys made in the interests of archaeology. Permission to purchase photographs must be made through the Antiquities Department, Ministry of Education. The Survey Department can also supply enlargements. I am indebted to Mr H. Rowntree, Director of the Reproduction Office, for the information.

Survey number	Site	Date	Lens focus	Approx. scale	No. of negatives
2	Qurna (Thebes)	Sept. 1920	6"	1/12,000	18
10	Luxor and Karnak	7 May 1921	6"	1/6,400 1/10,500	15
11	Thebes	7 May 1921	6"	1/9,400	50
14	El-Amârna	11 April 1922	6"	1/20,000	34
15	Dendera	7 April 1922	6"	1/8,600	8
	Edfu and El-Kâb	31 March 1922	6"	1/8,000	14
18	Dahshûr to Abu Rawâsh	4 Sept. 1924 at 7.30 A.M.	10"	1/12,500	140
19	" "	24 July 1924 at 5.30 P.M.	10"	1/12,500	141

AN ARABIC WRITER ON MEDIEVAL BRITAIN

Professor Leonhard Franz contributes the following :—

The Arabs belonged, and to some extent even now belong, to what may be called a learned race. Formerly, they had many philosophers and students of all branches of science. Geography was particularly popular amongst them. Arab travellers visited different parts of Europe and wrote down what they saw and learned. To these old writers we are indebted for much valuable information.

One of these Arab students was Qazwîni, who lived in the 13th century. He is the author of a cosmography which contains references to an island which he calls Irlânda. Qazwîni describes the way in which the inhabitants of the island catch whales. Georg Jacob, who gives* a translation of the geographical chapters of Qazwîni (as far as they concern Europe), mentions that the name Irlânda perhaps means

* Arabische Berichte von Gesandten an germanische Fürstenhöfe aus dem 9 und 10 Jahrhundert. Quellen zur deutschen Volkskunde, heft 1, Berlin 1927.

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Islânda, that is Iceland. That may well be true, for the description of catching whales suggests Iceland rather than Ireland.

Qazwîni also knows of an island Schâschîn, that is Saxland, and it is clear that he means Britain, not the part of Germany now called Sachsen (Saxony). He says :—‘ Schâschîn is an island which lies opposite the extreme end of Spain ; its length is 20 days journey. The island is rich, has a vast population and much cattle. The small cattle are white ; one cannot find a black sheep. There exists no nation which adorns itself with more gold ; the commoner and the nobleman wear golden chains, and the noblemen wear bracelets on their arms, and their kings wear gold-embroidered clothes.

‘ There is an extremely beautiful kind of wool which has no equal in any other country. It is said that their women oil the wool with lard, which makes its quality superb. The colour of the wool is white or turquoise blue, and it is of great beauty.

‘ There exists also a marvellous thing which is not to be found elsewhere in the whole world. On the shore grow trees and sometimes the banks collapse and a tree falls into the sea and moves to and fro because of the waves, till a white mist springs up. That continues and the mist increases till it gathers into the shape of an egg. Then the egg takes the shape of a bird, with only the feet and the beak attached. Then when it is the will of Allah that the wind blows on the bird, feathers are produced and the feet and the beak are detached from the tree. Thus a bird is created which flies over the sea. Never is it found alive, but it is cast ashore in stormy weather, and it is found there dead. It is black, like the bird which is named al-gattâsa (the diver) ’.

One cannot find any rational explanation of Qazwîni’s account of this marvellous bird. The most likely is that he has seen or heard of the white foam on the shore and of the way the waves and the wind sometimes play with the foam. [He seems to have got hold of a variant of the barnacle-geese tale.—EDITOR].

NEANDERTHAL MAN IN ITALY

On the 1st June of this year Professor Sergio Sergi made an interesting communication to the Società Romana di Antropologia. He has kindly consented to the publication of the following summary of his paper.

Last May Professor Sergi was shown by the Duke Mario Graziola a recently discovered skull, in which he immediately recognized the

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characteristics of the Neanderthal type. The Duke has since confided the skull to the care of the Anthropological Institute of the University of Rome.

The skull was found in a gravel pit on the estate of Saccopastore (the property of the Duke and rented by Signor Casoni), about $3\frac{1}{2}$ kilometres from the Porta Pia near where the road crosses the Tazio bridge. During the working of the pit, which has been going on for some years, fossilized bones of large animals have constantly been brought to light, and Signor Casoni has followed the discoveries with interest and sought to preserve them. Towards the end of last April the foreman came upon a human skull; it had already received some damage, but was extracted with care from the stratum of gravel in which it was found, and taken to Signor Casoni, who in turn handed it on to the Duke.

The skull, which is fossilized and fragile, is still in part covered with fine gravel cemented fast to it. Enough, however, is uncovered to allow the shape to be determined *in norma verticale*. Professor Sergi has succeeded in removing the gravel from a part of the right side of the face, but the left side is still concealed. The orbital arches and supraorbital regions are broken, and the arches of the cheek bones are destroyed. There are two large irregular holes in the vault of the skull, the larger (on the left) between the parietal and frontal bones. All the molar teeth and the second premolar are preserved on the left side, and the second and third molars on the right. The right incisor and the medial incisors are lost. All the other teeth were damaged when the skull was discovered. The mandible is lacking. In spite, however, of this damage, the state of preservation of the skull as a whole is good.

The skull is at once distinguished from those of modern man by the peculiar appearance due to the relative largeness of the facial compared with the cerebral portion, by the great degree of prognathism, and by the depression of the vault. The cerebral capacity is small, certainly not more than 1200 cubic centimetres. For this reason, and because of the fineness of the bones, Professor Sergi thinks the skull is that of a woman. The state of the sutures, which are simple in structure and all open, and that of the teeth, show that it belonged to an adult but still young person of not more than 30 years of age.

Observing the skull from the *norma verticale*, one can clearly trace the characteristic birsoidal outline, due to the peculiar retro-orbital narrowing and the gradual posterior widening which reaches its maximum in the vicinity of the external angles of the parietal bones. The curve of the outline is asymmetrical. The frontal region projects a little

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further forward on the right than on the left, and the parieto-occipital region projects further back on the left than on the right. On the right side, within the line of fracture of the frontal bone, there is a large mass of strongly cemented sand which projects for a distance of about 15mm. and formerly occupied the orbital cavity of which it still retains the contours. Owing to this fortunate circumstance, it is possible to distinguish the lateral edge of the upper margin of the orbit and to recognize clearly that the skull must have had an enormous *torus supraorbitalis* surmounted by a deep groove.

Those teeth which have been preserved (5 molars and one premolar) are large ; the 1st and 2nd molars of equal dimensions and the 3rd smaller, and they show a considerable degree of use over the masticating area, especially on the inside.

The face is very large, with a morphological height equal to that of the Gibraltar skull, and an enormous orbital aperture ; the piriform aperture is very large and low, and the bridge of the nose is extraordinarily projecting. The anterior projection of the nasal processes and of the surface of the body of the maxilla continue together from top to bottom so as to form a kind of snout, which is met with in no existing human type.

This is as much as can be determined from a summary inspection of the skull, which is still to some extent hidden by gravel, but it is enough to show that it belongs to the Neanderthal type.

Professor Sergi, accompanied by many of his colleagues at the University of Rome, went in person to investigate the site of the discovery, and found the actual part of the gravel pit where it had been made in exactly the same condition as it had then been, so that he was able to examine the actual conditions in which it lay. The strata revealed in the pit were a complex of sand and gravel, the alluvium of the valley of the Aniene, already well known by Roman geologists from the examination of other sites in the close neighbourhood of Saccopastore. The skull was found at a depth of six metres in a stratum of gravel rich in the fossilized remains of large mammals. The quantity of these remains found in the pit from the beginning is notable. The majority of these have been lost, but Professor Sergi, in the short time he was there, found parts of bones of *Elephas antiquus*, *Hippopotamus major*, *Rhinoceros Mercki*, *Cervus elaphus*, *Bos primigenius*, and others. The Institute of Geology at Rome contains numerous similar remains from the same strata at other places in the neighbourhood of Saccopastore. The strata of sand and gravel in which both the human skull and this

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abundance of the above mentioned species were found is the result of fluvial and lacustral deposits at the time when the valley of the Tevere was assuming its present topography.

No worked stones have been found at Saccopastore, but worked flints of the Mousterian type were found in the same strata in the valley of the Tevere and Aniene as early as 1846. These finds, which were at the time subjected to severe and often unjust criticism, are today fully vindicated by the discovery of the Neanderthal skull, which proves beyond doubt that man lived in Lazio together with the great extinct mammals in the mid-pleistocene period during the Riss-Wurm interglaciation.

Professor Sergi intends to prepare a detailed description of the Saccopastore finds.

ARUNDEL CASTLE

The following note on Arundel Castle has kindly been written by Dr G. W. Eustace, the historian of the Castle, to accompany the fine air-photograph which we reproduce :—

Arundel Castle shares with Alnwick the distinction of conferring a title. Its present owner, Bernard Marmaduke Fitzalan-Howard, 16th Duke of Norfolk, Hereditary Earl Marshal, is, by right of possession of the castle, 37th Earl of Arundel and premier peer of England.

The date of the foundation of the castle is uncertain. Tradition assigns it to Alfred the Great, since in his will he leaves Arundel to his nephew, Athelm. It is possible that it passed to Godwine, Earl of Sussex and that Harold, slain at Senlac, died its owner. The Conqueror awarded it to Roger Montgomery, commander of the centre of his victorious army. Through the treason of Robert de Belesme (Roger's elder son and 3rd Earl of Arundel) it reverted to Henry 1, whose widowed queen, Adeliza, dowered it upon her second husband, William de Albini. The male succession of the Albinis failing in the fourth generation, the castle passed through the female line to John Fitzalan, lord of the manor of North Stoke. On the death of 'the last of the Fitzalans' in 1580, their heiress brought it by marriage to the head of the great House of Howard.

The castle sustained many sieges. Taken and retaken three times during the Civil War, it was, at the close of hostilities, razed to its foundations by order of Parliament. The walls of its ancient keep, the inner gatehouse erected in 1070, the rooms above it where Queen

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Matilda renounced her claim to the throne in favour of Stephen of Albemarle and where King John of evil memory slept, together with the outer gatehouse built by Richard Fitzalan in 1295, however, escaped destruction. During the Commonwealth occupation in 1644, Lady Springate, risking her own life and that of her unborn child through floods and the tempest of a winter's night, travelled from London to Arundel to the bedside of her dying husband, the Governor of the castle and father-in-law of William Penn.

The castle has endured many restorations. Left a ruin in 1644, it remained uninhabited until 1711 when Thomas, 8th Duke of Norfolk, repaired the dilapidated apartments and erected others of more modern appearance. A further and more extensive 'restoration' was partially executed by Charles, 11th Duke. Happily his plans were never completed and it was left for Henry the 15th Duke, to rebuild the south and west fronts in conformity with history, to repair the shattered battlements, and to leave the whole as we know it today.

ROMAN VIEW OF MEMPHIS

We are indebted to Mr J. W. Crowfoot, Director of the British School of Archaeology in Jerusalem, for the following note:—

'The joint Yale-British School Expedition to Jerash was fortunate in finding several representations of towns in the floor mosaics of churches which were cleared this year (1929). There were three groups of town representations, two in a church dedicated to S. John the Baptist which was completed in 531 A.D., according to a long inscription in mosaics in front of the chancel, and one in a church dedicated to SS. Peter and Paul which was probably finished a few years later. All of them are clearly inspired by Alexandrian traditions; two of the towns shown have the name Alexandria written above them, and the names Pharos and Memphis also occur on the mosaics in the church of SS. Peter and Paul. The picture shown on plate IV was found in the south aisle of S. John the Baptist's church and immediately adjoining it was a Nilotic scene with fish and water birds, a distant prototype of which was, of course, found at Tell al Amarna. A comparison of the two leaves no doubt in our mind that our picture is a representation of Memphis'.

The following note on the site of Memphis is reproduced by permission from Baedeker's *Handbook of Egypt* (8th edn., 1929, pp. 153-4):—

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‘ Were it not for the vast necropolis to the west of the ancient city, no one would imagine that one of the most famous and populous capitals of antiquity had once stood there. The Egyptians, from the earliest period down to the Roman imperial epoch, built their private houses of large sun-dried bricks of Nile mud, reserving better material, such as limestone and granite, for palaces and temples. But even the public buildings of Memphis have almost disappeared, as the stones were early carried off to build other edifices elsewhere.

‘ The story of Memphis stretches back to the beginning of Egyptian history. According to a very probable tradition, Menes, the first historical ruler in Egypt, is said to have founded the “white walls” of a fortress in a reclaimed district on the borders between the two ancient kingdoms of Upper and Lower Egypt, in order to keep the conquered inhabitants of Lower Egypt in subjection. To the south of this he is said to have built also the temple of Ptah, the patron god of the city. The new settlement rapidly became of importance; it was made the capital of a separate district, and the kings of the early dynasties sometimes planted their court here. Under the sixth dynasty a new quarter was founded, in which King Phiops I fixed the residence of his court, and near which the sepulchral pyramid of the ruler was situated. This quarter, as well as the pyramid, was called Men-nefru-Mire, *i.e.* “The beauty of King Mire (Phiops) remains”, and this name (in the later abbreviated form Menfe, in Greek Memphis) was afterwards applied to the whole city. Memphis attained its greatest prosperity under the monarchs of the Ancient Empire, who resided here or in the vicinity (near Gîza and Abusîr). Even under the Middle and New Empires, when Thebes became the centre of Egypt and the Theban Amun the most revered among the gods, Memphis appears to have retrograded but little. In the time of the twentieth dynasty the temple of Ptah was still the largest in the country but two. In the course of the contests for the possession of Egypt, which raged after the twenty-second dynasty, the city was captured by the Ethiopian Piankhi and by the Assyrians.

‘ Cambyzes, the first monarch of the Persian dynasty, took Memphis by storm after his victory at Pelusium (525 B.C.) over Psammetichos III; and even after the foundation of Alexandria (331 B.C.) it appears to have retained some importance. Under Augustus it was a large and populous city, though its palaces, elevated on an eminence, lay ruined and deserted. Among the temples that still existed were those of Ptah, of Apis, and of a female deity who was identified with the Aphrodite of

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the Greeks. In consequence of the edict of Theodosius (A.D. 379-395) the temples and statues were destroyed, and under the later Byzantine monarchs the heretical Monophysites seem to have been very numerous here. Muquauqis, the leader of the Copts, was established at Memphis while negotiating with 'Amr ibn el-'As, the general of 'Omar. The Mohammedan conquerors transferred their residence to the right bank of the Nile, opposite the northernmost part of Memphis, using the well-hewn blocks which had once composed the venerable palaces and temples of the ancient city of Menes, for the construction of their palaces, castles and mosques at Cairo. But down to a late period the ruins of Memphis excited the admiration of all visitors. Thus 'Abd el-Latif (1162-1231) assures us that even in his time the ruins contained a profusion of wonders which bewildered the mind and baffled description. After his time the rapidly dwindling ruins of Memphis are rarely mentioned'.

RHODESIAN ARCHAEOLOGICAL EXPEDITION

We have received the following report from Mr Leslie Armstrong, F.S.A., the leader of the Rhodesian Archaeological Expedition :—

The expedition proceeded to Rhodesia early in May and returned to England in September, having devoted three months to archaeological research work in Southern Rhodesia, chiefly amongst the Matopo Hills, south of Bulawayo. The results, when fully worked out, will substantially advance our knowledge of South African prehistory and provide valuable evidence relative to early racial migrations. With the assistance and co-operation of the Rev. Neville Jones of Hope Fountain, Mr Armstrong was enabled to carry out general research work over a large area of Southern Rhodesia and to make excavations in the implementiferous gravels of the Zambesi, at the Victoria Falls. The latter yielded results of first class importance and will form the subject of a joint report.

The expedition concentrated upon excavations in the cave of Bambata which, through the excellent work of the Rev. Neville Jones and Dr Arnold, in 1918, was already known to contain important deposits as well as a frieze of wall paintings numbering over two hundred examples.

Tracings have been made of the paintings by Mr Armstrong's son, and two typical sections of the cave deposits systematically excavated. The relic bed proved to be nearly 20 feet in thickness and provided for

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the first time in South Africa a stratified sequence of cultures ranging from South African Acheulean at the base (Stellenbosch), to a microlithic industry at the top. The latter is an early phase of the Wilton culture, apparently ancestral to that of the Cape Province and which in South Africa takes the place of the Tardenoisian and Azilian in Europe.

The Lower Palaeolithic level at the cave bottom, was over three feet in thickness and rich in coup-de-poing, choppers, flakes, etc., made of a green volcanic rock and of Upper Acheulean facies. Its depth and general character suggested a prolonged occupation of the cave at this period and a long interval of time and possible climatic changes before the incoming of the South African Mousterian folk, who were the next occupants. Above this level the deposit consisted of black carbonaceous material, very compact and rich in artefacts, which continued to the present surface.

The lowest portion of this black deposit, for a thickness of over two feet, was of typical Mousterian character, containing points and levallois flakes of volcanic rock and white quartz, closely comparable in technique to those of the European caves. The Mousterian layer merged into a zone yielding striking evidence of the arrival of neo-anthropic influences, marked by the presence of typical burins in great abundance, and the general improvement and refinement in technique of the implements. Quartz and a brown chalcedony became the favourite material for these. From this point a distinctive culture was present which through a thickness of over 12 feet exhibited a steady development, and terminated a few inches below the present floor level of the cave. It is a culture essentially Upper Palaeolithic in facies and may be described as Mousterio-Capsian, the Mousterian element predominating. It is believed that this culture will prove to be typical of the Upper Palaeolithic of South Africa as a whole, as it undoubtedly is of Southern Rhodesia, though its exact horizon had not previously been determined. It is proposed to designate this 'Bambata culture'.

The characteristics are an abundance of burins of various forms, associated with a beautiful and distinctive point which, as the excavations have shown, develops from a pure Mousterian point, by well defined stages, into a slender point of almost Solutrean technique.

The microlithic industry was confined to the surface layer of the cave, and yielded not only the usual small scrapers, crescents and ostrich shell beads, but numbers of micro-burins, a tool not previously recorded in South Africa. It has been found, however, both by the Abbé Breuil and Mr Armstrong on many other sites in addition to Bambata.

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The second area excavated confirmed the first in all respects, but the Mousterian level proved to be of exceptional interest and importance. For the first foot this was of normal Mousterian character, but beneath this two distinct intercalations of neo-anthropic strata were encountered, each upwards of 6 inches in thickness and separated by a Mousterian level 6 inches thick. Beneath these intercalated layers the pure Mousterian continued to the base.

This suggests the contemporary presence in the Matopo region of neo-anthropic folk, and the older Mousterian stock, and the occupation of the cave by each in turn for a period before the fusion of the two races—or cultures—finally took place.

CORRIGENDA, VOLUME III

On page 236 we assumed that the initials W.M.C. at the foot of the notes on recent excavations in the *Journal of the Manchester Egyptian and Oriental Society* (1929), no. 14, pp. 19–25, were those of Professor W. M. Calder, but we now know they are those of Mrs Winifred M. Crompton, and apologize for the error.

We have already apologized by letter both to Mr M. R. Hull and Mr Reid Moir for the unfortunate slip on page 259, lines 13, 14, where the former's name should have been printed.

On plate x, facing p. 290, the lower figure should be numbered 20, not 19.

Page 313, line 36, *for* millennium *read* century.

The bone implement from Cheddar illustrated on the plate facing page 346 is 177 mm. long.

Page 349, line 13, *for* lonely *read* lovely, and on line 16 *for* goddess *read* god.

Recent Events

The Editor is not always able to verify information taken from the daily press and other sources and cannot therefore assume responsibility for it.

An interesting account of the prehistoric village of Skara Brae in the Orkneys was published in *The Times*, 26 August (p. 8). The abundance of stone implements found proves that it must be dated to the Stone Age, and we see no *a priori* objection to associating it with the megaliths of the islands.



The late British Government threatened to cut off the miserable pittance granted to the British School of Archaeology at Jerusalem. 'M. Herriot, having visited Delos, has asked the French Finance Minister to provide for a financial vote to extend the archaeological studies of the French School'. (*Daily Chronicle*, 27 August).



A cave with wall-paintings has been found at Griegos, in the province of Teruel, Spain. (*The Times*, 24 August).



An interesting account of the Palace of Ukhaidir, one of the least known ruins of Mesopotamia, is printed in *The Sphere*, 10 August. It was virtually discovered by Miss Gertrude Bell, who surveyed it and published her plan in *Amurath to Amurath* (2nd ed. 1924, pp. 147-58). Those who wish for further information will find it there.



Chance excavations have revealed part of the foundations of the Roman amphitheatre of Chester. (*Daily Mail*, 10 July).



The British School of Archaeology in Jerusalem, working in collaboration with the American School of Prehistoric Research, under the

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direction of Miss Garrod, announces the completion of the season's excavation of the caves at Wady el Mughara, near Athlit. The largest cave, called Mugharat el Wad, contained six strata :—(1) Bronze Age (2) Mesolithic (3) three upper or late Palaeolithic deposits (4) Mousterian. This is the most complete series of early cultures yet found in Palestine. The finds include a small stone carving of a human head, found in the mesolithic stratum in association with a collective burial consisting of 10 skeletons of children and adolescents. In the lowest Upper Palaeolithic stratum (reputed to be equivalent to the Lower Aurignacian of Europe) were found two human jaws and a fragment of a frontal bone. (*The Times*, 20 July).



The strangely neglected Roman marching camp at Little Clyde, near Beattock Summit on the west coast of Scotland, has recently been visited by Mr R. G. Collingwood. It lies about midway between Glasgow and Carlisle, and may be seen from the train. It is still fairly well preserved, the north side containing two quite recognizable entrances protected by external traverses. It lies on the Roman road from England to the western end of the Scottish Wall, a road which, Mr Collingwood suggests, was perhaps 'traversed by a Roman army only once—an army of some 10,000 men, marching swiftly through the country and covering 20 miles a day'. (*Dumfries Herald*, 17 July; verbatim report of a column).



A civilization resembling that of the first and second cities of Troy was discovered at Thermi in Lesbos by Miss W. Lamb, working for the British School at Athens. The site, which was occupied from about 3000 to 2000 B.C., shows the remains of five superposed towns, and has produced well-stratified pottery and figurines as well as copper, stone and bone implements. Excavations will, it is hoped, be resumed next spring. (See also report in *The Times*, 18 July, p. 17).



A complete skeleton, in a splendid state of preservation, has been found in Stoney Island Bog, near Portumna, Ireland. It lay under 14 feet of peat on a bed of soft marl. It is being examined by an anatomist of Galway University. (*Irish Times*, 24 July).

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The Somerset Archaeological Society's excavations at Ham Hill were continued last Summer, under the direction of Mr H. St. George Gray. A section through the rampart indicated, we infer, that it was contemporary with the Meare Lake Village. (*Western Gazette*, 9 August).



A summary of Mr Henry Balfour's presidential address to section H of the British Association, delivered at Johannesburg on 1 August, is printed in *Nature*, 17 August, pp. 268-72. It is entitled 'South Africa's contribution to Prehistoric Archaeology'. Mr Balfour has studied the subject, *cujus pars magna fuit*, for 30 years, and he throws out many suggestions that may well be taken up by the future archaeologists of that vast land. The problem of the Zambezi implements is still unsolved; and if the implements antedate the cutting of the Zambezi gorge, as Mr Balfour and the majority of students think, they indicate a very great age for Man in South Africa.



In a recent discussion M. Mauss pleaded for more experiments to test the intelligence of apes, and to suggest ways in which the first tools might have been used. In particular he asked why the old story of the Orang-utang and the oysters should not be put to the test. The gap between the earliest human artifacts and the so-called tools used by, for example, chimpanzees, is still a very wide one. (*L'Anthropologie*, xxxix, p. 130).



Palaeolithic implements have been found in Anatolia by M. Eugène Pittard, on the Upper Euphrates and 'about 5 kilometres south of the little village of Adi Yaman'. (*L'Anthropologie*, xxxix, p. 223).



Mr W. J. Hemp, Secretary of the Royal Commission (Wales), reports from his own observations that 'a Montgomeryshire site known as Dinas, in the parish of Llanidloes Without . . . is fortified in precisely the same manner as Knap Hill', Wilts. The ditch is interrupted like those of Knap Hill and Windmill Hill, and we may therefore presume that Dinas is, like them, of neolithic age. (*Arch. Camb.* lxxxiv, p. 145).

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In *Nature* for 30 March last is a very interesting note by Professor Raymond Dart. It is claimed that for the first time definite proof is forthcoming that bronze was smelted in prehistoric times in South Africa. It has long been known that the copper mines of Katanga were exploited in early times, but so far there has been no indication whatsoever of the period. At a place called Blaauwbank (of whose position in South Africa Professor Dart gives no further clue) were found 'no fewer than thirty distinct furnaces . . . alongside some of them . . . small circular stacks of hand-cobbed tin and copper ore . . .'. Owing to the presence on the same farm of a lode of nickel, the bronze in question contains a large percentage of this alloy; and it is suggested that the nickel bronzes of the Old World might have been derived from South Africa. The fact that no ancient bronze implements have ever been found in South Africa is claimed as showing that the bronze in question was worked, not by the natives, but by prospectors coming from afar. That, at any rate, is the conclusion to which Professor Dart has come. We do not, however, think that the age of these finds has been satisfactorily determined yet.



The last number of the *Journal of the R.A.F. College, Cranwell* (vol. IX, no 2, autumn, 1929), is quite an archaeological one. It contains an account of the clearing of the Roman villa at Haceby by the cadets of the college, and an article on 'The Aeroplane in Archaeology' by Wing-Commander Insall, V.C., who needs no introduction to readers of *ANTIQUITY*. Wing Commander Insall's article is illustrated by an excellent oblique photograph of a kite, taken by himself with an ordinary camera. The present number, like its predecessors, contains much of general interest.



In the October number of *Man* is an account of the discovery of two beakers in a chambered cairn at Kraiknish, Loch Eynart, Isle of Skye. The chamber, however, is so small that it is to be regarded rather as a cist than a chamber. The two beakers are in the possession of the finder. The rarity of beakers on the west coast of Scotland makes this find of more than usual interest; and we hope that, in the interest of students, the beakers will find a home in a public museum.



An Anglo-Saxon cemetery has been found on the eastern slope of

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the Hog's Back, immediately outside the town of Guildford (Surrey 31 NE). A record of the facts concerning the discovery has been communicated to the Ordnance Survey by the finder.



In the course of excavations in progress at Palmyra under the direction of M. Cantineau, Dr Ingholt, and M. Gabriel the tomb built by A'ailami and Zebida, mentioned in a bi-lingual inscription of A.D. 149, has been found. A'ailami is the person to whom the large isolated column at the north-east side of the temple of Baal was dedicated, and Zebida was the father of Bolanos, the curator of the fountain of Ephka, which supplies Palmyra with water. Bas-reliefs, ten in number, representing the dead taking a funeral repast, were found, but the tomb had been completely robbed. The reconstruction of the ruins has been undertaken and with the help of the French Air Force the plan of the town has been laid down. (*The Times*, 30 July, p. 11).



The members of the Oxford Classical Association have continued their work on the site of Alchester, near Bicester. A quantity of pottery of first and second centuries has been found. (*The Times*, 31 July, p. 9).



An interesting article is contributed to *The Times* (5 August, p. 11) by Sir Arthur Evans on the results of the year's work on the Palace site of Knossos. Combined with the investigation a series of works of conservation and of explanatory reconstruction have been carried out with the aid of Mr Piet de Jong, the architect of the British School at Athens. Sir Arthur's special objective this season was the examination of the northern and eastern borders of the site with particular reference to his forthcoming third volume on 'The House of Minos'.



Reports of the season's work at Caerleon under the direction of Mr V. E. Nash-Williams, Keeper of Archaeology in the National Museum of Wales, are printed in *The Times*, 6 August (p. 13) and 8 October (p. 11). One of the most important finds was a series of decorated tile antefixes bearing, in addition to the usual Medusa heads, an equal-armed cross, with splayed ends, of the third century.

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The results of this and previous seasons' work now make it possible to suggest the following dates for the fortress :—(1) that it was founded A.D. 70–80, perhaps actually in 75, (2) in the first decade of the second century the earlier defences of earth and timber were reconstructed in stone, (3) the occupation continued until about 120, (4) the administrative buildings within the fortress were in use as late as the middle of the fourth century.



Mr S. E. Winbolt has reported the results—chiefly negative—of the excavation of Castle Hill camp, at Tonbridge. Its general character suggests an Early Iron Age date, but no burials or pottery were found and Mr Winbolt infers that the camp was one of refuge rather than of habitation. (*The Times*, 30 August, p. 7).



A photograph of the excavations at Kish, which have now reached virgin soil at a depth of 60 feet from the original surface of the mound, was printed in *The Times*, 30 August, with illustrations of some of the copper vessels found in the lower strata.



As the result of further excavation on the Roman wall, at Birdoswald, under the direction of Mr F. G. Simpson, Mr I. A. Richmond, and Mr E. B. Birley, some interesting data with regard to the history of the fort have been established. These are shown by the coins and pottery and more particularly by two building inscriptions of the first importance. The fort was built originally about A.D. 125, and was restored by Severus between 205 and 208. The second inscription, dated closely to about 305, records that the Praetorium, the Headquarters and the artillery platforms had been restored. The particular interest of the latter is that such a record of admission of destruction is unparalleled among Roman inscriptions. (*The Times*, 31 August, p. 8).



An account of the antiquities of the Poltalloch district of Mid-Argyll and the finds which have been made from time to time is contributed to *The Times*, 20 September (p. 17) by Mr J. H. Craw.

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The excavation of Meare Lake Village, which has been in progress for several seasons under the direction of Dr Arthur Bulleid and Mr H. St. George Gray was continued in September. (*The Times*, 3 September, p. 8).



An exhibition of photographs and reproductions of the eighth century mosaics recently found in the Great Mosque at Damascus was held at the Louvre in September. The mosaics now recovered by M. Eugène de Lorey, Director of the French Institute of Archaeology and Musulman Art in Damascus, were due to the Omayyad Caliph Walid I (705-715) who transformed the Byzantine church of St. John into a mosque. At one time it was thought that the mosaics had entirely disappeared but they were found to be almost perfect when the numerous coats of thick whitewash were removed under M. de Lorey's supervision. The surface of the mosaic is over 500 square metres. The recovery of the mosaics is an important contribution to Islamic art. (*The Times*, 20 September, p. 12). In character, however, they belong, like the contemporary wall-paintings of Kusejr Amra in Transjordan, to the late classical tradition.



The *Corriere della Sera* of Milan reports the discovery of remains near Verbicaro which are part of the city wall of the ancient Lavinium, the Roman station mentioned in the imperial itineraries, and hitherto located only by these sources. (*The Times*, 26 September, p. 11).



The excavations at Richborough Castle have been continued this summer under the direction of Mr J. P. Bushe-Fox. One of the most interesting features of the work has been the uncovering of two roads, one of yellow gravel and the other of large cobbles with a central drain. The one dates from the end of the third century and the other, a reconstruction, is of about the second half of the fourth century. Below these were two other roads, of the first century. The first, which must have been laid before A.D. 70, consists of a layer of beach pebbles 10 inches thick and 23 feet wide. The second, of small black pebbles, was made about A.D. 85. A report of the season's work is printed in *The Times*, 26 September, p. 9.

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A report on the excavation of the Roman villa at Castle Hill, Ipswich, under the direction of Mr Reid Moir, is published in *The Times*, 8 October, p. 11.



Professor R. Newstead and Professor J. P. Droop have continued their investigations on the Vicarage Field at Lancaster, which they began in September 1927. The dating of the Roman occupation of the site is confirmed as from the last quarter of the first century to the latter part of the fourth. (*The Times*, 8 October, p. 11).



During the winter session of the University of London Dr R. E. Mortimer Wheeler is giving courses of lectures on British archaeology from the earliest times to A.D. 100, Roman Britain, Saxon Britain, and Archaeological Field-work in Britain. Many of the lectures and demonstrations are given at the British and London Museums.



Two exhibitions of interest to antiquaries are announced by the Burlington Fine Arts Club of Savile Row, London. The first, which will open in December 1929, will include a small collection of Romano-British objects chosen for their artistic value. This is believed to be the first occasion upon which Romano-British work has been approached exclusively from this stand-point. The second exhibition will be open next May, and will represent 'Art in the Dark Ages in Europe (*circa* 400-1000 A.D.)'. This exhibition will naturally be of a more ambitious character, and, if suitable examples are obtainable from abroad, should be of exceptional interest.

Reviews

MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA. No. 36,
The Dolmens of the Pulney Hills. By Rev. A. ANGLADE, S.J. and Rev. L. V.
NEWTON, S.J. *Government of India, Calcutta, 1928.* pp. 13 and plates II—VII
(3 of 18 photos, 2 of 25 plans, 1 map, 1 of 2 sketches). 4s. (2 rupees 4 annas).

This pamphlet gives a summary account of certain neighbouring groups of dolmens in the Province of Madura in southern India. Isolated chambers are rare exceptions, the great majority being set up as close together as possible, in groups of from 2 to 14, the usual number being 6 or 7. Each group is surrounded and supported by a dry-built wall of squared stones rising to the level of the capstones, and usually built in four straight sections; one angle of the enclosure so formed is generally a right angle. Very exceptionally the walls are polygonal and enclose chambers radiating from a centre; in most cases however the chambers are fitted closely and regularly into the enclosure and there appears to be no attempt at orientation. The average length of the walls varies from 36 to 20 feet on the longer sides, and from 31 to 14 on the shorter ones.

The vertical slabs forming the chambers instead of being firmly set up are generally placed directly on the bare rock and held in position both by a horizontal floorstone, by the capstone and by side packing stones placed between neighbouring chambers or the enclosing walls.

The chambers vary much in size; from 6 to 14 feet in length, 2 to 5 feet in width and 3 to 7 feet in height; they are often accompanied by one or more 'rectangular [stone] boxes of an average size of 3 ft. 8 in. to 2 ft. in length, by 3 ft. to 1 ft. 9 in. in breadth, and built on the same principle as the larger rooms'. Sometimes, when the boxes are absent, one end of the chamber is partitioned off by a cross slab.

What appear to be groups of primitive circular hut foundations are found in several places close to the dolmens and also low circles of stones and earth, some of which may be sepulchral and others the enclosures of abandoned villages.

None of the grouped chambers were found to contain ancient pottery, bones, or other datable objects. The authors hesitate to class them as sepulchral, and make a distinction between them and certain 'buried dolmens' sometimes surrounded by circles of stones, and in one case having port holes worked in one of the supporters and in an internal division. These single chambers they consider to have been 'burial places for the owners of the numerous groups of ordinary dolmens'. The use of the pamphlet would have been simplified by the inclusion of a classified schedule of the monuments of which it treats, as the arrangement makes reference from the plans and illustrations to the text far from easy.

The monuments have suffered, and are still suffering, from wholesale destruction, especially at the hands of road makers, and there will be universal agreement with the hope expressed in the final paragraph 'that systematic researches may be undertaken . . . and that some steps may be taken without delay to protect . . . what still remains of our interesting Dolmens'.

W. J. HEMP.

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SOME ITALIAN SCENES AND FESTIVALS. By THOMAS ASHBY, D.LITT., F.S.A., late Director of the British School at Rome. *Methuen and Co.* 1929. *pp.* xv, 179, and 26 illustrations.

Few Englishmen know modern Italy better than Dr Ashby, who has written a pleasant, readable book, which covers more than its title, as it gives much historical and archaeological description of the places in which the religious ceremonies that he records take place. He depends chiefly on his own observation and camera, but he has availed himself of the accounts also of other witnesses of the processions, both past and contemporary. The Italian person of quality in Browning regarded it as 'the greatest pleasure in life' to come into the city to see

Our Lady borne smiling and smart
With a pink gauze gown all spangles, and
Seven swords stuck in her heart

but Dr Ashby takes his readers to the small country towns and villages, where the most interesting of these festivals take place, though unfortunately the picturesque local costumes are more and more being given up.

The connexion between these rites and the pagan cults or magic which have preceded them is brought out, such as the leading about of the ox at Loreto Aprutino, and the prophecy that there will be a *bella stagione* because the Madonna's veil at Sulmona came off *subito*. One is reminded of the necessity for the Holy Dove to work smoothly at the Scoppio del Carro at Florence, if the local vines are to prosper. It is altogether a valuable record of what may be in danger of passing away, and we must agree with Dr Ashby that while we may gain much (from modern ideas, modern improvements and modern civilization) 'we are also losing much that is irreplaceable'. A few slips may be noted: *temenoi* (p. 3), and *cannephoroi* (p. 102) are not correct classical Greek forms; Boniface IX was no longer pope in 1407 (p. 57); Henry of Cornwall was the son of Richard, King of the Romans—the reference to his father as Richard I (p. 135) suggests Coeur de Lion. It is a pity also that an agreeable style should be marred by occasional slipshod English, such as 'different to', 'between each verse', and the split infinitive; the statement also that in Sardinia the parish priests are the 'real fathers of their people' is open to a misinterpretation which was probably far from the author's thought.

REPORT OF THE COMMISSION ON TYPES OF RURAL SETTLEMENT (Union Géographique Internationale). *Montgomeryshire Express, Ltd., Newtown, Mont.* 1928. *pp.* 130, illustrated. (*Price not stated*).

This Commission is the outcome of a paper read by Prof. Demangeon at the International Geographical Congress at Cairo in 1925. The object is to discover the reasons why in some districts the rural population is grouped in compact villages, while in others it is scattered in isolated farms and hamlets. The Commission consists of Prof. Demangeon (France), Prof. Fleure (Great Britain), Prof. Biasutti (Italy), and Prof. Michotte (Belgium), with power to co-opt not more than three additional members. They have made a beginning by issuing the Report under review, which consists of a collection of reprints of papers, both in English and French, by various workers.

Prof. Demangeon himself makes the most important contributions in the form of (1) a questionnaire defining in detail the scope of the problem, and (2) a paper which discusses the question in a sane and systematic manner from every possible point of view. Though the subject, is, perhaps, primarily geographical in nature, it has a very close

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bearing upon social and economic history and upon archaeology, especially as it is closely related to ancient field-systems and methods of agriculture. Prof. Demangeon traces the distribution of the two types of settlement throughout Europe and Asia and elsewhere, a proceeding which would have been rendered much more intelligible had it been accompanied by a map, as the average student's knowledge of geography is hardly sufficient to enable him to picture, for instance, the relative positions of numerous small European towns such as Oglia and Adda, unless he happens to have been there himself.

This contributor next discusses the possible causes of this distribution. Under the heading of natural conditions he considers the influences of contour, soil and water-supply; under that of social conditions he cites original tendencies, ethnic traditions, the need for defence, and agrarian systems. Then under the heading of agricultural economy he describes the conditions of nomadic agriculture, periodic redistribution of arable land, fixed possession of land and specialized forms of cultivation. He then goes on to describe the various types of agglomeration and dispersion of settlements. Under the former are villages associated with open-field cultivation, villages with fields contiguous to the dwellings, and villages with fields separated at a distance from the houses of the farmers. Under the heading of scattered or dispersed habitations he distinguishes ancient primary dispersion, intercalary, secondary, and recent primary dispersion. The whole subject is considered systematically, and one is left with the feeling that, though he admits that there is much yet to be learnt from regional surveys, the tendency is for grouped settlements to give way to scattered farms under the influence of more progressive and enlightened forms of agriculture, while such villages as survive serve only the purpose of local trade.

Among the other papers E. G. Bowen contributes a stimulating and suggestive study of the rural settlements in south-west Wales, wherein he attempts to correlate the different types of settlement with the various racial types of their inhabitants. This idea should be worked out in other areas also, to check the results arrived at.

E. Thurlow Leeds has a useful paper on the distribution of prehistoric settlements in the upper Thames basin, illustrated by distribution-maps of the various periods. R. U. Sayce describes the dissemination and agglomeration of habitations in the recently colonized area of South Africa, and H. King deals with the geography and geology of the settlements in south-west Lancashire. The remaining papers comprise descriptions by Miss S. Harris of the village community in Alderney and of the field-systems in Mediterranean lands and in the Atlantic coastal lands of south-west Europe, and also a detailed description of the Highland open-field system by I. F. Grant.

The whole report is a useful contribution to science. Criticisms are few and for the most part unimportant, but we cannot overlook the lack of an index, without which a scientific work resembles a bucket without a handle—its immediate function is unimpaired but its manipulation is rendered more difficult.

E. CECIL CURWEN.

WAR AND THE CHASE. A handbook to the collection of weapons of savage, barbaric and civilized peoples in the Horniman Museum. *Second edition.* 1929. 6d.

It goes without saying when the author of a handbook is Mr H. S. Harrison that it is all a handbook should be, clear, concise and informative. In this excellent little production the author demonstrates the evolution of weapons as distinct from their independent invention. It can be recommended to all who are interested in the subject.

R. C. C. CLAY.

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LECTURES ON EGYPTIAN ART. By JEAN CAPART. With a preface by LUDLOW BULL. pp. 290, 188 illustrations. (Price not stated).

This series of six lectures by the most popular of popularizing Egyptologists does not pretend to go very deeply into the history and meaning of Egyptian art. M. Capart's friends know well enough that he can be far more profound and instructive when he wishes. The book is a first class example of that excellent and instructed journalism about Egyptian antiquities which, alas, sometimes arouses the envy of the serious writer by the success of its appeal when more erudite works remain unprinted or unread. That M. Capart neglects no means of interesting his audience is shown by his loyal but determined use of the visit of H.M. the Queen of the Belgians to the tomb of Tutankhamon in lecture v.

For these lectures were delivered before audiences to many of which the romance and excitement of archaeological discovery and the glitter of the precious materials were of as much interest as the rules and principles of the art of one of the greatest nations of Antiquity. It is difficult therefore to criticize a book clearly written for the uncritical reader, in whom however it will arouse an interest denied to a more abstruse work. M. Capart has the art of picturesque writing even if he sometimes lays too great a stress on the personal side of the matter. The discoverer (even the excavator of golden deeds) should always be less than his discovery especially when, as in Egypt, there is the element of chance—the chance that something *was* left to be found after all these centuries of destruction and tomb robbing. Does not M. Capart tell us how near the tomb of Tutankhamon itself came to not being discovered at all? and is it not perhaps significant that the contents of this very tomb should have given us but the shadow of the Egyptian art of the period? For, as M. Capart points out, these delicate and profusely ornamented *simulacra*—these war chariots which could never have been driven into battle—these beds and chairs which could hardly have been used except by a disembodied spirit—are but the ritual imitations of the more substantial and more valuable objects of Egyptian life. Certainly as we go backwards from the 18th dynasty the funerary furniture approximates more and more to the things actually used by the living. Compare the chair of Hetepheres the mother of Cheops and the stone vessels of the earliest dynasties with the lavishly decorated but flimsy furniture and the extraordinary fretwork alabasters of the tomb of Tutankhamon. Surely over-ornamentation and misuse of a material are signs of artistic decadence. The purpose of an object and the natural beauty of a material should never be lost in the expression of the cleverness of the craftsman. There are of course in this tomb many examples of art in the highest sense but these are almost all objects which were, or could have been, used by the living. There are an ivory casket—the walking sticks with the handles carved with foreign captives—the daggers and jewellery—all these are wonderful. But the returning tide of religious convention had almost choked the great artistic movement of the reign of Akhenaton. Egypt had perhaps already given the world her best by the end of the Middle Kingdom; in inlay, glass had already replaced the semi-precious stones in the time of Tutankhamon. Hereafter, save for a brief experiment in Saitic times Egypt had exhausted her artistic gifts and remained strangely uninfluenced by the Greek art of which she may have been a remote ancestor.

In a book translated from a foreign language there must be a few minor errors. For example on page 192 'atmospheric agents' should be 'atmospheric agencies' while on the previous page 'dissimulated' should be 'concealed'. The

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cornet bearer on page 118 carried a Mycenaean 'filler vase' and not a musical instrument or even the pastry receptacle of whipped cream. On the cover of the book the Uraei have somewhat mysteriously turned into blue birds, but this is probably neither the fault of M. Capart nor of the Uraei. MUS.

BABYLONIAN ART. By SIMON HARCOURT-SMITH; *with 76 plates in collotype*. [Kai Khosru monographs on Eastern Art; General Editor, ARTHUR WALEY]. Ernest Benn, Ltd., 1928. 21s.

A monograph on this subject was badly needed, and the only complaint we have to make of this one is that it is too slight. The author does not claim to touch more than the fringe of the subject; but he does so in a way that makes one wish for more. He is alive to the importance of cycles of development in art and in civilization, though through our still scanty knowledge, it is, as he says, difficult to detect the different moments of climax in either. He divides the art into four main periods:—before Hammurabi (?—2000 B.C.), Hammurabi to the Assyrian age (2000—1000 B.C.), the Assyrian age (1000—600 B.C.) and the Neo-Babylonian and Persian ages (600—323 B.C.). The text is short (about 15,000 words only) but composed in a pleasant style, with frequent illuminating analogues and observations; such as that the Persian conquerors of Babylon were not true orientals;—a fact which is plain also in the later history of Mesopotamia. But we cannot be too grateful to all concerned for the beautifully reproduced illustrations. By producing what is really a small and well-arranged atlas of Babylonian art, with a short explanatory text, the author and publisher have done good service to the intelligent study of art in a region where the record is continuous for at least 5000 years. Such a region (paralleled only in Egypt) is of paramount importance in the history of art critically considered. For this reason we regret the absence of precise dates (when available) on the plates themselves, or of any information about the present abode of the objects illustrated. The entire absence of scales is also noticeable, though not perhaps a very serious omission in a book of this kind.

The series includes also monographs on Byzantine Art (by Hayford Peirce and Royall Tyler) and on Scythian Art (by Professor Gregory Borovka).

A HISTORY OF ARCHITECTURE. By A. D. F. HAMLIN. *Longmans' College Histories of Art Series*, ed. by JOHN C. VAN DYKE. New edition, revised, 1928. pp. xviii, 492. 10s. 6d.

This new edition of Professor Hamlin's book places in the hands of the public a remarkably compendious volume. The history of architecture is dealt with from the time of prehistoric dwellings down to the skyscrapers of to-day; and the author does not confine himself to Europe and America, but considers the buildings, past and present, of the whole civilized world.

In a book in one volume on this scale, obviously the subject matter must be rigorously compressed, and this has been accomplished so successfully that the volume is stiff reading, simply because of the tremendous amount of matter that it contains. Long lists of buildings illustrating the various styles are appended to every chapter, together with bibliographies. In a book written across the Atlantic, without ready access to most of the buildings mentioned, some errors are inevitable. For instance, as examples of the most important prehistoric monuments in Britain we read of 'the great tumuli of Bartlow and Silbury Hills'. The Bartlow Hills are Roman and Silbury has never been proved to

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be a tumulus. Again, tennis was not, so far as we know, played in Rome during the Empire, so that tennis courts can hardly have been constructed, as Mr Hamlin suggests, as an adjunct to large Roman houses. We are bidden to note the round piers of Bristol cathedral, but no one knows what that long vanished nave was like. Probably Malvern abbey should be read instead.

With the Author's opinions on many subjects some students may disagree ; perhaps when he describes English Perpendicular work as overloaded with ornament, or when he ascribes ballflower ornament to the Early English period, or in his judgment on the work of some of the Renaissance architects. The book is occasionally too technical for the general reader, who will be discouraged to find the Temple of Fortuna Virilis described as 'tetra-style prostyle pseudoperipteral'.

Rather less space might well have been devoted to cathedrals and rather more to military architecture, which has to be satisfied with one meagre paragraph, while the less important, but almost more characteristic buildings, such as parish churches, might have received more notice. But these are only details, and do not materially damage a most interesting and complete work, the ideal companion for anyone travelling round the world with a knapsack.

The book has many illustrations. The diagrams are good, but the photographs are sometimes indistinct. There are misprints on page 34 line 5, page 350 line 2, and page 397 line 6.

DINA PORTWAY DOBSON.

LA BOHÈME À L'ÂGE DE LA PIERRE. 1924. LA BOHÈME À L'ÂGE DU BRONZE. 1928. By ALBIN STOCKÝ. Prague: Jan Štenc.

Prehistoric researches have been vigorously and successfully prosecuted in Bohemia for many years. But as long as their country formed part of the Austro-Hungarian monarchy Czech archaeologists published their results exclusively in their own tongue with the consequence that their articles were inaccessible to most of their colleagues. Now that national aspirations have been satisfied, this policy has been abandoned and an appeal is made to a wider public. One of the most fruitful expressions of the new orientation is represented by the small series initiated by the Keeper of the Prehistoric Department in the Bohemian National Museum. Each volume consists of a number of plates (fifty for the Stone Age and fifty-nine for the Bronze Age) illustrating the principal types of pottery, implements and ornaments, grouped by cultures and arranged in an approximate chronological order. Each volume is prefaced by a short descriptive introduction indicating the chronological position and relations of the several cultures. On the actual plates only the site of discovery and the scale of each object is given. For any one who wishes to get a general idea of the types current in Central Europe during the Neolithic and Bronze Ages, no better introduction can be suggested.

V. GORDON CHILDE.

PRASSITELE. By PERICE DUCATI. Florence: F. le Monnier. n.d. 10 lire.

This handy little volume forms part of a series of biographies of a variety of personages :—Giotto, Boccaccio, Vittoria Colonna, etc., and why Praxiteles should have been selected for this particular honour is not quite clear. We may, however, be grateful for the chance which has led to this choice, for the result is an excellent life of the sculptor and a brief critical account of his works, with adequate indexes and fairly well illustrated, by a very competent scholar whose works on Etruscan art have already been brought to the notice of the readers of ANTIQUITY.

T. ASHBY.

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PRÄHISTORISCHE FLACHGRÄBER BEI GEMEINLEBARN IN NIEDER-ÖSTERREICH (RÖMISCH-GERMANISCHE FORSCHUNGEN, Band 3).
By JOSEF SZOMBATHY. Berlin: Walter de Gruyter. 1929. pp. 78, 26 plates.
18 marks.

In Lower Austria, Moravia and eastern Bohemia the so-called Early Bronze Age is brilliantly represented by inhumation graves of the 'Aunjetitz' culture and the Late Bronze Age no less amply by the Lausitz urnfields. But a distinct Middle Bronze Age group comparable to the tumulus culture of western Bohemia and southwest Germany has left scarcely any traces. One natural explanation of this gap is of course to deny its existence, i.e., to assume that the 'Aunjetitz' culture continued in these regions till the Lausitz replaced it or grew out of it. Light on this problem has been expected from the cemetery of Gemeinleborn, since it has long been known that graves of the two types were there juxtaposed, and Hoernes had even asserted a cultural continuity disclosed in the pottery. The admirable publication before us certainly reveals a number of Middle Bronze Age types in the earlier inhumation graves but leaves the question of continuity open. All the significant finds from nearly three hundred graves are here described and clearly illustrated, so that the reader can form his own opinion on this interesting question and gain an exceptionally comprehensive idea of the complete furniture of a comparatively rich cemetery lasting from Early Bronze Age and Middle Hallstatt times.

V. GORDON CHILDE.

RIVISTA DEL ISTITUTO D'ARCHEOLOGIA E STORIA D'ARTE, vol. I, fasc. 1. Rome: Stabilimento Poligrafico dello Stato. 150 lire yearly.

The first part of this new periodical, which is to appear three times a year, is a handsome, and, at the same time, useful and welcome addition to the long list of periodicals which every well-equipped archaeological library should contain. The first article, by Paribeni, introduces to our notice a series of drawings of the Column of Trajan, which the Institute has recently purchased. After an exhaustive examination of the other possibilities, he attributes them to Jacopo Ripanda of Bologna, who made drawings of all the reliefs, we are told, at the peril of his life.

The second article is the first of a series of studies on the antiquities of Agrigentum, in which the recent excavations financed by Captain Hardcastle are described by their director, Professor Pirro Marconi. This instalment deals with the extremely interesting archaic sanctuary of the deities of the underworld near the temple of Demeter (S. Biagio), of which, indeed, it was the predecessor, and a group of archaic altars found near the temple of the Dioscuri which has now been entirely excavated. (See *Times Literary Supplement*, 11 April 1929).

The third and fourth articles deal respectively with Roman miniature paintings of the 11th and 12th centuries and with a painter of Treviso, Pier Maria Pennachi (1464 to 1514-15).

T. ASHBY.

SUDAN NOTES AND RECORDS, vol. VII, 1928. Published at Khartoum.

The Editors are to be congratulated upon another volume of outstanding merit. Indeed, the record of this journal is one of which any country may be proud. The articles are all first-hand contributions to knowledge, written by practical men, most of them administrators, with doubtless many other calls upon their time. We can easily imagine that in time to come these notes and records will be prized as highly as are today

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the travel-books of medieval and Arab geographers ; for what they describe will then have passed completely away.

That fate, however, can hardly befall the Libyan desert, described by Messrs. Newbold and Shaw, in a most exhaustive monograph of 92 pages. Mr Newbold had already written an account of the principal archaeological results in ANTIQUITY (II, 261-91), and his sketch-map there was then, in fact, the most up-to-date map of this unknown portion of the desert. In the present volume he gives a detailed map of the results of the explorations of himself and Mr Shaw. It has been compiled from their observations by the Sudan Survey Department, and is on the scale of 1 : 2,000,000. In addition to their own remarks on cartography, meteorology, botany, archaeology and so forth, there are sections on barometric heights (Dr John Ball), geology (Mr G. W. Grabham), and natural history (Mr H. W. Bedford). The article is fully illustrated, and, like the others in the volume, is eminently readable.

These others range from birds and magic to bibliography and history. A bibliography of the languages of the southern Sudan, by Professor Bernhard Struck, is a valuable and practical contribution. Mr Whitehead's account of the first contact between Europeans and the southern Sudanese is one of the best of its kind we have read, and revives the memory of such men as Emin Pasha and Speke, whom we of the 20th century are apt to forget.

In the Notes, we observe a remarkable resemblance in the dolmen-like altar, dancing, and spirit-house in the Rejaf district to similar arrangements in the Naga Hills of Assam. The reviews are refreshingly sincere and actually tell us what the reviewer really thinks about the subject. We wish there were more of them.

ROMAN ESKDALE. By R. G. COLLINGWOOD. *Whitehaven News Limited*. 1929. pp. 51, 4 plates, 2 plans. 1s.

We have already noticed in these columns (I, 112) Mr R. G. Collingwood's *Guide to the Roman Wall*. Now there is another of his admirable guides to praise. Eskdale is little known and lies off the beaten track (and long may it remain there). But it holds a perfect Roman fort and a Roman building—the bath house called Walls Castle—which 'still stands to the full height of its walls'. In this respect it is almost unique in Britain ; of buildings proper (as opposed to the walls of forts and semi-subterranean structures) we can think only of the Pharos at Dover and the arch in the keep of Chilham Castle which are equally perfect ; and both of these are masked by medieval masonry. The adjacent fort of Ravenglass is associated by the author with Agricola's projected invasion of Ireland and with the dramatic incident of the Usipian mutiny. The past lives again in this modest little guide, which is really well written (as of course one expects it to be), and is also beautifully produced. It is worth buying if only for the fine contoured plan (1 : 3200) of Hardknot Castle and its environs, which shows what we may expect when surveyors are also artists.

THE STEPPE AND THE SOWN. By HAROLD PEAKE and HERBERT JOHN FLEURE. *Oxford, at the Clarendon Press*. 1928. pp. 160 with 84 illustrations. 5s.

This volume of the 'Corridors of Time' series deals with the period 2600—2200 B.C. Nomads from the south Russian Steppes are represented as moving southwards into Mesopotamia, south-eastwards into Turkestan, westwards into Transylvania and Hungary. As a result, there occurred a general dispersion of people who made painted

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pottery. The westward movement of the nomads after displacing the painted pottery people of Cucuteni A and Erosd, next set in motion the spiral-meander Danubian I peasants who lived further west. The wanderings of these displaced people eventually bring them both to Thessaly, where they are found later occupying the eastern and western halves respectively of the Thessalian plain. Hence Dhimini pottery in East Thessaly and incised and black-polished wares in West Thessaly and central Greece. The painted pottery of the latter areas is however regarded as a continuation of the earliest local pottery of period A.

The view thus propounded is roughly that of Childe and Frankfort, and some such movement into Thessaly from the Danube area is likely enough, but the possibility of some common outside centre must always be borne in mind, while the date assigned to the movement by the authors involves serious difficulties. A painted pottery culture which combines both Dhimini and West Thessalian characteristics and a few Erosd sherds, has been found recently in Chalcidice underlying the remains of a black ware (Anatolian) culture, which, to judge from its analogy with Troy I, can hardly begin later than 3000 B.C. Similarly on another site in Chalcidice, in a similar context, has been found a deposit in which pottery of West Thessalian type (B period) is associated with the fine black-polished ware with white-paint decoration identical with that found in Thessaly on the one hand, and with close affinities to the Erosd pottery on the other. The inferences to be drawn from this are that, both the eastern and West Thessalian styles have a more or less common origin; that their place of origin lies somewhere near the point of junction between the Black Earth region and the Middle Danube; that since their settlements in Macedonia come to an end about 3000 B.C. their arrival in Thessaly must be earlier than the date assigned to it by the authors; consequently their departure from the Danube region can hardly be associated with the supposed destruction of Erosd, or, if it is, the destruction of Erosd must be put much earlier than 2600 B.C.

On page 57, the authors seem to imply that the trail of the Danubian peasants can be picked up in the Vardar valley by means of their spiral-meander ware. This is not so. Incised ribbon spirals appear in central Macedonia about 2000 B.C., while the appearance of the full spiral-meander ware is shown by stratigraphic evidence to have occurred about 1650 B.C., or a thousand years later than the passing of the Danubian peasants.

But even if the arrival of the immigrants in Thessaly cannot be associated with raids from the steppes about 2600 B.C., influences from that quarter are perceptible in Chalcidice at about that time. Here in strata corresponding to the beginning of Troy II have been found stone battle-axes of south Russian-Trojan type associated with fluted bone beads characteristic of south Russian graves. Evidence is thus supplied from rather an unexpected quarter in support of the author's view that the battle-axe is earlier in south Russia than in northern Europe.

The book is clearly written and admirably illustrated. Its tone is speculative and non-dogmatic, as is proper in dealing with a period where much is still obscure and fixed points few and far between.

W. A. H.

THE COLLECTED PAPERS OF HENRY BRADLEY, with a Memoir by ROBERT BRIDGES. *Oxford University Press*. 1928. pp. x, 296.

Dr Henry Bradley was associated with the *Oxford English Dictionary* for 40 years and was for many years the most eminent of British philologists. He was a scholar of the first rank, one whose writings were doubly valuable merely because it was

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he who wrote them. It was therefore a happy thought to publish a memorial volume containing some of his less accessible papers. The result is a worthy monument to his memory and a very useful and readable book. It opens with an admirable and illuminating memoir of 56 pages, written by his friend Robert Bridges, the Poet Laureate. Then follow 66 pages on place-names; 15 on lexicography; 49 on language; 37 on literary problems and studies; and 21 on conjectural emendations; concluded by 17 pages of bibliography.

Dr Bradley was responsible for more than four and a half thousand pages of the *Oxford English Dictionary*. It was the main work of his life, though it occupies (in the nature of things) only seven lines of the bibliography. These papers are his *Obiter Dicta*, many of them by-products of the main task; yet they represent in themselves a harvest of which many a scholar might well be proud.

We turn naturally to the papers on place-names, which occupy more than half of this part of the volume. We find an article on Ptolemy's Geography of Albion; one on English place-names in general; a 'bunch of guesses' on 'Some prehistoric river-names'; and some slight but pleasing shorter studies, disinterred from the *Academy* files of the '80's' and '90's'. They are worth reading for the style of their composition as well as for their contents; they show the attitude adopted by a scholar towards a dangerous but fascinating subject. If he puts forward a guess, it is supported by the facts which suggested it; but never did the author of the guess maintain it against clear evidence to the contrary. Some of his conjectures, as he called them, we in our outer darkness do not agree with; for instance, his interpretation of Acemannes-ceaster. (There is medieval evidence of an Akemanstrete in Wychwood Forest, and this can only be the Roman road now so called). But no one attempting to discuss derivations can ignore Bradley's remarks.

The book is worthily and beautifully produced.

A ZÖLDHALOMPUSZTAI SZKITA LELET=LA TROUVAILLE SCYTHE DE ZÖLDHALOMPUSZTA PRÈS DE MISKOLC, HONGRIE. By N. FETICH. (*Archaeologia Hungarica*, III). Buda Pest (*A Magyar Nemzeti Múzeum*). 1928. pp. 46, 8 plates (text in Magyar and French).

It is generally stated in books devoted to the Scyths that there was an extensive occupation of Hungary by these nomads. In point of fact the material available to support these assertions was very exiguous except in Transylvania. In the Hungarian plain several of the Scythian objects, found on sites of long established native industrial settlements like Pilin and Aszód, might naturally be explained by the metal trade. Only a few graves containing Scythian objects (swords, pole-tops, etc.) were known before the war. And in these the burial rite often diverged from those current on the steppes while in the grave-goods the eastern objects were mingled with western (*La Tène*) and native types. Since then the list of finds has been augmented by two superb examples of the Scythian animal style in gold from Tapió Szent Márton and Zöldhalompusztá respectively. Each included the figure of a reclining deer in good Scythian style. Unhappily both discoveries were made by chance in the absence of expert witnesses. Dr Feticich carried out supplementary excavations on the site of the second discovery and satisfied himself that it came from a ruined grave under a barrow. He argues that Tapió Szent Márton had also been a burial place.

As to the age of the objects the author concludes after a scholarly analysis of the

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comparative material that his deer and the gold chain of Greek manufacture found therewith, while probably the earliest example of Scythian art yet found in Hungary must have been made in the first half of the 5th century B.C. ; in view of its worn condition its actual burial may have been a century later. His conclusion indicates the relatively late date of the Scythian occupation of Hungary and at the same time implies a lowering of the chronology for the Hungarian Late Bronze Age, inasmuch as the Early Iron Age is represented by scarcely any Hallstatt sites or cemeteries.

In addition to a lucid description of the new finds and a penetrating analysis of their stylistic affinities, Fettich gives a detailed summary of earlier finds from Hungary. Being presented also in French it will offer to the general reader an invaluable supplement to the existing Magyar accounts.

V. GORDON CHILDE.

THE OLD COTTAGES AND FARMHOUSES OF NORFOLK. By CLAUDE J. W. MESSENT. *Norwich: Hunt.* 1928. 10s.

Country cottages, like common folk, do not as a rule receive the attention that is paid to their more pre-eminent contemporaries. Stately mansions may show us to what heights the arts of a period were capable of rising, but village cottages enable us to glean a surer knowledge of the everyday life of the times. The houses of the rich may be compared to axe-hammers and jade necklaces, cottages to the flint arrowheads and fragments of cooking pots. But there is one essential difference between great houses and country cottages. Great houses were built usually regardless of expense, and expense lay for the most part in the transport of material foreign to the locality, as well as of foreign ideas in the brains of strangers engaged upon the building. Until the introduction of cheap and speedy means of transport, cottages were built by local workmen of local material, and were as much local productions as the furniture they contained. When cottages were repaired the local workmen repaired them in the style that prevailed at the time ; but within recent years, thanks to increased transport facilities, the general decadence of good taste, and, to a certain extent, to the over-taxed pockets of the owners, thatched roofs have been replaced by galvanized iron, and stone floors by concrete pavements.

The cottages of Norfolk can be classified according to the material employed in their construction, of which there are nine different kinds, namely :—brick, flint, clay lump, carstone, clunch, wattle and daub, half-timber work, re-used limestone from ruined monastic houses, and various materials broken into small fragments and inserted into wide mortar joints—a process known as ‘ galleting ’. In this book there is a chapter devoted to cottages made of each kind of material, with many references to individual specimens in the text, illustrated at the end of each chapter by plates of admirably executed line engravings. Although the plates are labelled with the numbers of the pages to which they refer, yet it is a pity that there are not references in the text to the pages on which the illustrations can be found. But this is after all a minor detail, where all else is so explicit. There is a chapter on dovecotes, and another on old village shops. This book can be thoroughly recommended.

R. C. C. CLAY.

OLD CORNISH BRIDGES. By CHARLES HENDERSON and HENRY COATES. *Cornish Studies no. 1. Simpkin Marshall.* 1928. 3s 6d.

It is indeed gratifying that the University of the South-West at Exeter has undertaken this series of Cornish studies, that it possesses such competent observers as the

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authors of this the first number of the series, and that it has still remaining in its vicinity such beautiful examples of bygone craftsmanship and good taste.

Cornwall is fortunate. Its roads are but the terminations of long travel routes, and its natural beauties but the outskirts of the beauties of Britain. As decay begins always at the core, so the blighting hand of industrialism and the ravages of the bureaucratic spoiler in the person of the highway official make their malign influence felt last on the periphery. At the present day there is an outcry against the high speed of motor traffic, and officialdom in reply widens, and at the same time mutilates, all the old bridges the width of which does not correspond with that of its red tape. Now narrow bridges are the best check to excessive speed, as anyone can prove for himself who observes the heavy traffic passing over the two narrow, but beautiful, bridges at Christchurch. But if officialdom cannot find an excuse to widen a bridge, it nevertheless goes out of its way to spoil the beauty of it. Take Wiltshire as an example. Should a coping stone of a bridge become displaced, the authorities do not set it in place again. They make this an excuse for pulling down the whole side wall, and erecting in its place a nightmare of cement and iron piping. It has been suggested that all surveyors are bachelors and that by erecting these widely spaced iron pipes they hope to facilitate the falling of children into the waters beneath. Perhaps so. At any rate it is difficult to conceive any more plausible explanation.

The authors of this valuable survey give a lucid and interesting history of bridge building, which perhaps reached its apex in the 14th and 15th centuries when the necessary funds were obtained by the selling of indulgences. Bridge building almost ceased for a time after the Reformation. The oldest bridges were of local stone, but the authors do not give an earlier date to most of the famous 'clapper' bridges than the late Middle Ages. The increase in vehicular traffic, and later the Turnpike Act, caused the precipitous tracks down the valley sides to fall into disuse, and alternative and more convenient roads to be made. For this reason some of the older bridges have been spared.

The bridges on each of the rivers are treated seriatim, and an exhaustive account, so far as diligent search could procure it, is given of the history of each individual bridge. This book is illustrated by many excellent photographs. We hope that other counties, if they possess any bridges as yet unspoilt, will follow the example of Cornwall before it is too late, and, if they are lucky, will inveigle the assistance of the authors of this excellent little survey.

R. C. C. CLAY.

THE ORIGINS OF AGRICULTURE. By HAROLD PEAKE, M.A., F.S.A. *Benn's Sixpenny Library*. 1928. pp. 78.

The publishers are to be congratulated in being able to produce such valuable material at so modest a price as sixpence, but the subject is dealt with in a manner worthy of better paper and a more permanent form. We have had our own copy specially bound in buckram, and that is, perhaps, greater tribute than mere words of praise. Mr Peake is acknowledged as the greatest authority on this subject, and he discusses in six well-written chapters the problems as to where, when, and how agriculture first began. The respective claims of Africa and Asia as the birthplace of this great art are dispassionately sifted, and the matter is decided—quite rightly, we feel—in favour of Asia and the plains of Mesopotamia. The author confines himself to the question of the origin of the cereals and does not deal with methods of agriculture. A bibliography completes a thoroughly useful book.

E. CECIL CURWEN.

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ANTE OCULOS. Pictures useful for classical teaching in schools. With an appendix on the use of lantern slides. By JOHN PENOYRE. *Advisory leaflet no. 3. Issued by the Councils of the Societies for the Promotion of Hellenic and Roman Studies. Oxford University Press. 1929. 2s 6d.*

This little pamphlet should be extremely useful to all those who teach Classics, or who have need of illustrations of classical subjects. Its title is the only part of it written in a learned tongue; and the contents are a comprehensive and excellently classified and annotated list of publications. The headings chosen are Wall Pictures, Illustrated Books, Museum Photographs, Picture Postcards, Catalogues, Guide Books and Local Works, Lantern Slides. Some of the compiler's comments are illuminating, some caustic, but all admirably brief. The exhibition of the pictures on which this list is based by the Councils of the two Societies concerned and which terminated recently must have been very stimulating and informing. The privilege of access to such abundant material should alone be enough to increase the membership of the two Societies.

For a paper-covered pamphlet of sixty pages half a crown seems rather a large price.

DINA PORTWAY DOBSON.

BULLETIN DE LA SOCIÉTÉ POUR LA CONSERVATION DES MONUMENTS HISTORIQUES D'ALSACE. *Series II, vol. XXVI. 1926.*

By far the most interesting of the articles is that on the prehistoric, Roman and later earthworks of Alsace by M. Robert Forrer, to whom this number of the Bulletin is dedicated in honour of his sixtieth birthday. It is a long and scholarly article, and it testifies to the many years of intensive study undertaken by the eminent Conservateur du Musée Préhistorique et Gallo-Romain de Strasbourg.

Having shown that a number of so-called camps are in reality natural formations or dumps, M. Forrer goes on to treat of structures whose purpose was a peaceful one, such as boundary walls, dams, cattle-folds, etc. Certain works, originally peaceful in purpose, may have become places of refuge in times of anxiety. Protecting earthworks of sacred sites, earthworks with the name of 'Dun', those with the name of 'Rath' (*e.g.* Argentorate), and with the name of 'Schar' (*e.g.* Scharrachberg) are given separate chapters. There is an interesting chapter on the materials employed in the construction of earthworks, and chapters on the various types of earthworks according to their modes of construction.

M. Forrer emphasizes that in Alsace there is no regular development from a primitive type—there being many different types varying with the local geology and the customs of their builders. He makes four categories of neolithic 'enceintes' corresponding to the four geological regions of Alsace:—(a) Rhine Basin: palisades surrounding pile or raft habitations of peoples who lived by fishing and by the snaring of birds, and who were to a small extent engaged in commerce; (b) Loess Plain between the Rhine and the Vosges: ditches and ramparts with palisades protecting pit and hut villages of tribes engaged principally in agriculture; (c) region between the loess and the Vosges: stone walls round settlements at the heads of valleys or on the plain; (d) mountainous region in the north and west: walls of large stone blocks interlaced with timber and carrying wooden towers situated above the steep faces of the rocks. Some of the large inhabited camps and boundary walls are ascribed to the neolithic period. It is difficult to say which types of earthworks were indigenous and which were importations following the many invasions; but the majority were erected in the face of invaders, for example in the transition period between Bronze Ages II and III when invaders came from west to east

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towards the plains. Later the line of the Rhine was menaced at the transition period between the Bronze and Iron Ages—the period of the building of great earthen fortresses such as Leutenheim. Certain large artificial mounds along the Rhine may have served as foundations for wooden guard houses although they were most probably originally all sepulchral, and were made at the end of the Hallstatt period to protect the river passages (e.g. Osthausen). Earthworks attributed to the xiith Legion were constructed of earth and wood with v-shaped ditches. The ramparts were reinforced with stone at a later date. During the occupation by the viiith Legion there was a period of comparative peace and prosperity, and as a consequence few new camps were constructed.

There is an excellent index and several useful plans.

R. C. C. CLAY.

FOLKLORE IN THE ENGLISH AND SCOTTISH BALLADS. By LOWRY C. WIMBERLY. *University of Chicago Press*. 1928. pp. 462. 25s.

Professor Wimberly has made 'an exhaustive survey of those customs and beliefs that in the English and Scottish popular ballads centre about religion and magic'. This book is the result of his labours; and the multitude of references in the text, and the length of the bibliography at the end are evidence of the depth of those researches. It is not a popular book, but folklorists will welcome it, and will appreciate the well-arranged and comprehensive index—a feature often very inadequate in technical books.

The author expresses his indebtedness to Professor Child's spadework, and proclaims his belief in the basic pagan character of ballads, although he admits that some are tinged with Christian thought. The book is divided into four parts :—the Pagan Underworld, subdivided into Ideas of the Soul, the Grave World, the Otherworld journey, and the locality and description of the Otherworld; Pagan Otherworld Beings, with chapters on witches, fairies and ghosts; the Otherworld Spell, including modes of enchantment and disenchantment; the Christian Otherworld—Heaven, Hell and Purgatory. There is an introduction to each part.

R. C. C. CLAY.

CERAMICA DE MARLES. By J. SERRA VILARO. *Publication of the Musaeum Archaeologicum Dioecesanum. Solsona*. 1928. pp. 38.

This well-illustrated pamphlet, a characteristically excellent publication of the Solsona Museum, describes the pottery and other furniture of a habitation-site in the Marles district of St. Pau de Pinos (prov. Barcelona). The culture represented by the material is that of the special 'Inner Catalan' province of Spain during the first period of the Early Iron Age, and its distinguishing ceramic-type is a large and coarse ovate pot, having a broad flaring lip, that is ornamented round the neck by an applied band (indented by finger-imprints or 'maggot' patterns), and on the body by rough zig-zag slashes and comb markings.

In itself such a clumsy ware suggests at first glance a Stone or Copper Age date for the sites where it occurs, but that they belong without doubt to a later period is attested not only by the small bronze awls and arrow-tips and scraps of iron that are sometimes found on these settlements (there was a splinter of iron-ore at Marles), but also by the occasional discovery thereon of vases of accredited Hallstatt types such as were deposited in the coastal urn-fields. Mossen J. Serra Vilaro, therefore, while recognizing the primitive character of the material that he describes, has no choice but to declare it as belonging to the Early Iron Age, and in this special instance he believes himself able to confirm that dating by pointing out the resemblances between certain handled bowls from Marles and Italian bowls from Villanova and other sites in Italy.

T. D. KENDRICK.

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THE CLASH OF CULTURE AND THE CONTACT OF RACES ; an anthropological and psychological study of the laws of racial adaptability, with special reference to the depopulation of the Pacific and the government of subject races. By G. H. PITT RIVERS. *Routledge*. 1927. pp. xiv, 312. 18s.

The writer of this essay in 'practical anthropology' is a grandson of one of the founders of the comparative study of culture ; he studied under Dr William McDougall at Oxford, and has seen native societies for himself in New Guinea and other parts of the Pacific, in New Zealand and among Australian aborigines ; he has made some studies of the causes of growth and decline of population among civilized peoples also ; and he evidently owes much to the teaching of Dr Malinowski, to whom the book is dedicated. Starting from the fact of special variability, and, consequently, not only the adaptability of this or that variety of mankind to special regional surroundings, but the diverse specific reactions of different varieties to the same regional conditions, he reaches a conception of culture as something conditioned by a people's 'heritage of culture-forms', traditions, institutions and the like ; by their 'culture accessories', in the way of material equipment and resources ; and by their 'culture-potential' or 'innate constructive ability'. This last would seem to be correlated with race or breed, but the estimation of it is difficult for lack of 'definite psychological criteria by which to determine either individual or ethnic distinctions'. Comparative study, however, tends to support the rather obvious conclusion 'that the great condition of the decline of any civilization is the inadequacy of the people who are the bearers of it' (p. 4). But inadequate to what ? 'The penalty of too great a progress in the direction of specialization and narrower adaptation is the inability to become adapted to any drastic change in the environment or mode of living forced upon a type from outside and not evolved by itself' (p. 7). Such adaptability, or the lack of it, 'is not a purely physical, but a psychophysical question' ; and what Captain Pitt Rivers has tried to do is to supply some of the categories relating to specialization and adaptability.

To take specific instances :—the decline or extinction of many Pacific peoples does not appear to him to be primarily, or mainly, due to introduced diseases, or to defects of hygienic arrangements during the period of Europeanization. What has been mistaken for immunization is, he thinks, the selective replacement of the old native breed by some sort of half-caste or other ; and the rapid decline of native population in certain regions of contact with European culture he attributes to psychological causes, originating in the destruction of the people's interest in life under changed conditions, and reflected in a general insouciance and depression of the native mind, accompanied by a growing disinclination to bear children. He infers that many well-intentioned and physically appropriate attempts to alleviate the effects of European contact or to 'improve the condition of the native' aggravate the trouble because they are further interferences with the régime to which he is accustomed ; as Stevenson put it (*In the South Seas*, p. 41, quoted p. 142) : 'Each change, however small, augments the sum of new conditions to which the race has to become inured'. Most potent amongst such changes, Captain Pitt Rivers believes, are those which affect the marriage system and consequently the intimate personal régime of a people ; and a large part of his essay is devoted to this topic, and to the arbitrary interferences due to the zeal of Christian (and therefore he believes 'essentially ascetic') missionaries, and also to some extent to administrative neglect of native customary law, and violation of native authority on which the orderly conduct of native society generally depends. Of the clash of religions, the picturesquely gloomy description

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is enhanced by a lurid contrast between idealized opposites 'Hellenic' and 'Puritanical', which are best left to the judgment of students of Hellas and the Puritans; and only a trained psychologist could rightly estimate the value of the distinction between psychic 'regression to phantasy levels' and 'progression to reality levels' as a contribution to the art of governing Pacific islands without depopulating them. For what it all comes to is this, as was sufficiently stated at the outset, that 'the great condition of the decline of any civilization is the inadequacy of the qualities of the people who are the bearers of it'. Lotus-eating it may be, but 'specialization and narrower adaptation' have been carried too far: 'each change, however small, augments the sum of new conditions', and hastens the end. It may have been very wrong of Europeans to explore the Pacific at all; but, in that case, was it so very right for the Maori to occupy New Zealand, or for the Polynesians to spread over Polynesia? There certainly has been much evil wrought, as usual, 'for want of thought, and not for want of heart'; and the worst of that evil has resulted because the opportunity has been let slip by those who had the power to ascertain the facts, and in spite of the warnings and entreaties of those who had the vision, and some of the knowledge, that might have been applied in time to save much. Now retribution has come, and in the grimmest shape. With an abundant, happy and industrious native population, these islands would be a very profitable estate to those who, through the accidents of ownership, are in a position to exploit them; without such natives they are of little use to anyone. But the native population is diminishing with dangerous rapidity, and what still survives is neither industrious nor happy. If this book cannot fairly be said to have suggested a remedy, it has at all events stated the problem, and shown the futility of much that has been done to solve it.

J. L. MYRES.

VORGESCHICHTE VON DEUTSCHLAND. By CARL SCHUCHHARDT.
R. Oldenbourg Verlag, Munich. 1928. pp. viii, 347, and 285 illustrations.

At its modest price of 11 marks bound this book is worth buying for its 285 illustrations, many of objects otherwise rather inaccessible. We must however warn readers against figs. 76-8, where vases of varying age and size are grouped together on the strength of superficial resemblances in form without any indication of scale, and equally against figs. 110-11. Here a late Lausitz jug for example is set beside a Corded beaker in proof of a genetic kinship without reference to the fact that the late Lausitz jug is descended from an earlier type that diverges far more from the alleged neolithic ancestor. So again one late Lausitz vase is compared with an early Walternienburg form, another with a late form from the same group.

These examples illustrate one of the methodological errors which mar the text: reliance on superficial similarities in shape between vessels separated, on the author's own showing, by five or six hundred years and any number of miles, as evidences of genetic relationships between cultural groups without attempting to find the intermediate forms in space and time (which are often actually non-existent), to work out in detail the evolutionary history of the type or even to be certain that genuinely characteristic forms have been selected. In fact the book must not be taken as typical of contemporary German prehistory and would not be accepted as orthodox by Schuchhardt's countrymen even when, as often happens, his keen insight has led him to a correct result, e.g., the derivation of the Bronze Age spiral decoration of Scandinavia from the Danube area. His chronology, too, in which the Nordic new Stone Age lasts from 3000-2000 B.C. is more reasonable than most systems.

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Schuchhardt denies the Scandinavian origin of the Indo-Germans ; they would have arisen in Thuringia from some remote palaeolithic stock (links still missing) and spread thence as the Corded Ware folk to Denmark, Finland, Switzerland, etc. So too he represents the Lausitz culture (1400-1200) as descended from a central German neolithic (before 2000!) stock, that of the southwest German urnfields from the equally neolithic Danubians. The Hellenic elements in the Hallstatt and La Tène cultures are brought through south Russia to the absolute exclusion of Marseilles and Aquileia. And sometimes statements are admitted that are distinctly misleading, as for instance that in the Late Bronze Age of southwest Germany urnfields replace barrows, whereas both methods of burial coexist side by side. None the less the book contains many excellent ideas and good accounts of type sites. It covers the period from Acheulian to Merovingian times.

V. G. CHILDE.

THE FORUM AND THE PALATINE. By CHRISTIAN HÜLSEN; translated by H. TANZER. New York : A. Brudenhausen. 1928. \$3.50.

This handsome book, with its 30 illustrations in the text, 65 photographic plates, and one folding plan, will be of service to all those who wish to make or renew acquaintance with the monuments of the Forum and the Palatine. The text, written by a master of his subject, has been well translated and has undergone revision by the author since the German original appeared. Until the official reports of the excavations of the last thirty years are published no definitive account can, of course, be written, but Professor Hülsen was present in Rome during their progress and has therefore the signal advantage of being able to describe them at first hand. Though it is less detailed than the other works in which he has dealt with the Forum and Palatine, it contains much new information, and will be welcome both to ordinary readers and to scholars, who will find the bibliography at the end of considerable service if they wish to enter into the minutiae of the subject.

THOMAS ASHBY.

LAS PINTURAS RUPESTRES DE LOS ALREDEDORES DE TORMÓN (TERUEL). By HUGO OBERMAIER and HENRI BREUIL. *Extr. del Bol. de la R. Acad. de la Hist.* 1927.

A study of fresh examples of the palaeolithic naturalistic art of east Spain is always welcome and the results obtained in the present case by Drs Obermaier and Breuil are exceedingly interesting. The new sites are not so very far from the well-known painted rock-shelters near the village of Albarracin, described many years ago (1911) in *L'Anthropologie*. At the new sites a number of paintings of animals and human beings, including one or two super-positions, have been studied. Some while ago Monsieur Breuil demonstrated at another site (Minateda) a chronological sequence of more than a dozen different styles of painting, which were determined by careful study of super-positions. These results, from the point of view of styles, have been applied at the new sites and a number of the styles in the Minateda sequence are seen to occur. Further work on these lines is much needed. A further point of interest is that the authors consider some at least of the paintings to be dated as far back as Late Aurignacian times. A reproduction is given of a hitherto unpublished figure of a stag very similar in style to many of the painted stags in the Spanish art group II, which was found painted on a block of stone in, and completely covered by, a Late Aurignacian deposit near Sergeac (Dordogne, France). It has been clear for a long time that all the paintings belonging

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to the Spanish art group II are not of the same age : to date some of them as far back as Late Aurignacian times is interesting and important. The article itself is well designed. After a short description of the sites, their geographical position, and how to get to them, an account of the paintings is given. This concludes with a résumé of the results obtained, in which references are given to a large key figure on which the drawings are reproduced in black. Finally there are no less than eleven plates printed in red. One wonders how much our English printers would have charged for 'making' such an article!

M. C. BURKITT.

STUDIA NEOPHILOLOGICA : a Journal of Germanic and Romanic Philology.
Edited by R. E. ZACHRISSON. Vol. I, nos. 1 and 2. *Uppsala : A. B. Lundequistika Bokhandeln.* Subscription 6s 6d.

A very cordial welcome must be extended to the first number of this new periodical. It is clear that it is not going to confine itself to matters philological in any narrow sense of the word but rather in the wider application of that term as it prevails among continental scholars. Of the four main articles two should be of interest to many readers of ANTIQUITY. These are the editor's own paper on 'Germani, the Name and its Early History' and Dr Wallenberg's 'Studies in Old Kentish Charters', both in English. In the paper on the 'Germani' Zachrisson, following up various lines of attack, endeavours to solve the long-standing problem of the origin and meaning of this name and to bring it into line with his general view that all early tribal names tend to be of toponymic origin. Ranging over a variety of evidence brought to bear on the problem from the most diverse sources he comes to the conclusion that *Germani* was the original name of a Keltic tribe settled some centuries before our era in the Alpine districts of south central Europe, possibly in the valley of the Italian river *Germanasca*. He believes that men of this tribe are mentioned side by side with the *Galli Insubres* in the inscription executed at Clastidium by the Emperor Augustus in memory of the Roman victory there in 222 B.C. These Alpine Germani, probably in alliance with peoples of Germanic (? Teutonic) origin, invaded and conquered Belgium. These conquerors of Belgium were held in great respect by both the Gauls and their Teutonic neighbours, who in course of time adopted their name. Etymologically the name means 'people of the roaring torrent'. Such in brief outline is the view presented with masterly clearness by Zachrisson. No finality is possible in matters of this kind, but here we certainly have a brilliant effort to compass all the various problems which surround the vicissitudes of a name which has been the subject of more than one controversy.

Wallenberg is one of the steadily growing band of able Swedish scholars who are devoting themselves to the study of our personal and place-names and here we have the first published fruits of his study of the place-names of Kent. He is concerned here with some difficult points of identification and interpretation and it is clear that he is a thorough master of all the problems which arise from a study of the ancient Kentish charters. His suggestion of an OE *pynd*, 'enclosure', a variant of the more usual *pund*, is amply confirmed by comparative evidence from the neighbouring county of Sussex. On the other hand, in dealing with the difficult *hredles stede* of another charter, which he believes is for *hreod-leah-stede*, 'place marked by a rush-clearing', with inorganic repetition of the *s*, he is probably wrong in associating this name with neighbouring places called High Reed, Copreed and the like. These almost certainly contain the element *reed*, very common in Sussex place-names in the Weald, going back to ME *rede* and occasionally to ME *rude*,

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which is descended from an unrecorded OE *hrīed*, *hrȳd*, 'clearing'. Place-names with this element are found quite freely in places where there can be no question of reeds.

Of two 'Miscellaneous Notes' one concerns itself with 'Early Germanic Personal Names'. Of five books reviewed two deal with personal names, Scandinavian and French, and one with the names of the peoples who figure in *Beowulf*. This again indicates how broadly cultural are the interests of the new periodical. It may be added that the articles, reviews, etc., in this number are all in either French or English, and in the note on 'Early Germanic Personal Names' the editor puts at the disposal of the public at large the important results of the Swedish work of Professor von Friesen, which would otherwise be inaccessible to the majority of the English public.

A long and happy career to this cheap and well-produced periodical!

ALLEN MAWER.

LA PITTURA DEI ROMANI. By PIRRO MARCONI. Rome: Biblioteca d'Arte.

The purpose of this book does not seem altogether clear. From the preface it would seem as if the author had set out to prove the independence and excellence of Roman art in general and of Roman painting in particular, and had found himself unable to do so. He protests, and not without reason, as others, and notably Mrs Strong, have done before him, against such arguments as this: that the portraits of the Roman period found in Egypt cannot be Roman because they are beautiful, when as a fact there is nothing distinctively Egyptian to be found in them. But he is apparently shocked at finding the Romans using anything so ephemeral as the fourth Pompeian style of painting: 'logically' he says, 'we should like to see the Roman create something massive, and be eternal and substantial like his own buildings': and he accounts for it by the 'desire for leisure, of a state of mind entirely different from the feverish activity of every day' (pp. 97, 98). And finally we find him obliged to admit that 'the Roman painter is not master of his material; he is the artist who has not been willing to explore his own mind, to develop all its possibilities; and the lack of clearness in mental vision is paralleled by the scantiness of his technical resources; there is no complexity, no resource; he always has to have recourse to the same tricks, the same expedients, and he rests content with their poverty. There is no basis of solid knowledge of a common character, which might have served as a sure foundation on which the works of individual artists could have been raised. This deficiency is profoundly to be deplored, for it made it impossible for the Roman to reach a complete style, real order, a great school of painting . . . If we remove a few works of Hellenistic "ambiente" and several of the portraits, what other of these works gives us the feeling of eternity, or impresses us with the depth of its feeling for life?' (p. 86).

Throughout the book the style is somewhat too subjective—a frequent fault nowadays—and the inconsistency which we have mentioned appears to pervade the whole. Take for example the passage on p. 22 when he says, 'The Romans do not copy but repeat with approximate correctness, changing and altering, taking away and adding; their works must be judged by themselves, good or bad, and we must seek in them Roman painting and not a Greek art of painting which is for ever lost'. Rizzo has, however, shown that there was a definite cycle of paintings of scenes in the Homeric poems, which influenced Vergil to a considerable extent, and which we can trace in the Pompeian paintings. There is no doubt, though the author does not lay enough emphasis on it, that the weakness of Roman art lay mainly in the limits which it imposed upon itself. To take a large wall and voluntarily divide it up into panels and spaces by means of sham

architecture, instead of dealing with it freely, was to impose fetters on art from which it was never able to liberate itself. And there is also no doubt that Delbrück was right when he traced many of the characteristics of the architectural framework and background of these paintings, and especially their false perspective, to the influence of the stage—to scene-painting of the Hellenistic period. Then our author ought to have noted that (as I have already pointed out)* the influence of the Columbaria, daintily decorated though they are, came in at the end of the Republic to rivet the fetters still more firmly; and we have in the Golden House tiny paintings almost invisible to the naked eye at the top of lofty rooms—small panels fitted into large architectural schemes, sometimes (as in the two famous ceilings, the Volta d'Oro and the room of the Laocoon) of considerable excellence but sometimes also of inferior quality. It may be noted here, by the way, that the little panels from the Rospigliosi Palace, now in the Museo delle Terme (figs. 131, 133, 154, see p. 101) formed part of a large composition, a drawing of which is to be found in the Topham collection at Eton (iv. 39), with a duplicate at Holkham, which I published in the same volume of the *Papers*. The author's knowledge of the drawings of paintings no longer extant, which are indispensable for the study of painting in the city of Rome itself, is unfortunately practically *nil*: and, indeed, he appears to proceed to explain Rome by Pompeii, and not, as should surely be the case, in the reverse direction, having regard to the relative importance of the two places. It is of course most unfortunate that the important paintings of the end of the Republic and the early Empire, which have been discovered on the Palatine, have not yet been properly published.

The illustrations are numerous and fairly good, but if the well-known frescoes of the Villa Itern at Pompeii are to be reproduced once more—and they certainly deserve to be—the photographs should be less flat in tone. One last grumble—the price of the book is not given, an omission which cannot be too strongly condemned. THOMAS ASHBY.

LYSIPPOS. By FRANKLIN P. JOHNSON. *Durham, North Carolina, U.S.A.*; Duke University Press. [*Great Britain*: Cambridge University Press. 37s 6d]. 1927. pp. xii, 334, and 62 plates.

When we have no positive piece of evidence of the kind that the Hermes at Olympia provides in the case of Praxiteles, we have to arrive at our estimate of an ancient sculptor's style by a careful sifting of literary references and scanty material remains; in particular we have to assess the value of Graeco-Roman copies removed in varying degrees from their originals. In such discussions, words like 'perhaps', 'possibly', 'probably', assume Mesopotamian importance; individual feelings may be strong, yet, if set out with the full array of 'ifs' and 'buts', they are apt to carry slight weight with other people. Yet that they should be so set forth is the only satisfactory method, although for the non-specialist reader the dogmatic statement is easier. We may say at once that this book by Dr Johnson is a most painstaking account of the patient researches of several years, and is clearly an important addition to the bibliography of 4th century Greek sculpture. Its exhaustive documentation alone would serve to make it a work of very great usefulness. But we do not feel—and it is a disappointment, though perhaps one that we should have anticipated under the circumstances—that there emerges from its pages a coherent, convincing characterization of the work of Lysippos; the whole question seems to remain on a scholastic plane. We have a feeling that, hoping for bread, we have received—appropriately, perhaps, in a treatise on sculpture—stone.

* See *Papers of the British School at Rome*, vii, 123.

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Before the discovery at Delphi of the Agias, the Apoxyomenos was accepted, on the strength of a single passage in Pliny, as typical of the style of Lysippos; and with the majority it has not lost its position. The finding of the Agias caused a stir, which was increased by the discovery in a traveller's diary written a century earlier of a copy of an inscription at Pharsalos identical, except for one word, with that on the base of the Agias, but with the added information that the original Agias was a work of Lysippos (thus confirming Homolle's declaration that the Delphi statue fulfilled the conditions necessary in a work by, or after, that sculptor); but once this stir had settled down, most authorities maintained their allegiance to the Apoxyomenos; some were prepared to admit the Agias as a less characteristic work; others refused to take it into account; only a few, rejecting the Apoxyomenos, based their Lysippic canon on the newly found statue. The fact that a leading English authority was among their number has perhaps made the position of the Agias more secure in this country than elsewhere.

Dr Johnson begins by describing the Argive-Sicyonian school of the 5th and 4th centuries—most of its artists are but names to us. He points out that while the Peloponnesian successors of Polykleitos were not merely his slavish imitators, none of them made vital innovations.

Passing to Euphranor and Skopas, he thinks it highly probable that the former had some influence on Lysippos; he admits that he is a sadly intangible artist, but is inclined to see in the Antikythera- (Cerigotto-) wreck bronze the type of his Paris, and to support the attribution to him of the Alexander Rondanini type and Hekler's suggestions as to the type of his 'mulier admirans et adorans'. Skopas—whose influence on Lysippos has long been recognized—is necessarily treated summarily. The date of the Tegea temple is discussed but the most important point to notice is the attribution to him of the Capitoline Aphrodite type.

For the date of Lysippos himself, the evidence is mainly epigraphical. The author puts it at about 375–290, but the evidence for the latter date is slender. Inscriptions mentioning his name are enumerated; perhaps the new publication, 'Clara Rhodos', will shed some light on the one which was denied to his enquiries. He was more fortunate at Kos, whence he publishes from a squeeze and conjectural restorations a metrical inscription referring to the statue of a boy by 'old' Lysippos. It is refreshing to read, in the midst of this intensive chronological essay, of the invention of a wine-jar by Lysippos. Dr Johnson does not attempt to identify the type from copies, though one would have expected some to survive.

Three chapters are devoted to the author's canon for Lysippic art. He finds his starting-point in the Vatican Apoxyomenos, which fulfils all that Pliny's account suggests to him, including a hint of effeminacy. Yet he is not altogether happy about the chorus of acceptance with which this statue has been identified. He would like to feel sure that it cannot be the 'Perixyomenos' recorded to have been made by Lysippos' son Daippos.

Yet on the whole he is prepared to accept the identification, and in practice we find that he continually refers to the Apoxyomenos as his canon of Lysippic style; in particular he stresses the importance of the triangular depression between the waist-muscles, observing that this recurs in some copies of the Herakles Epitrapezios. This statuette, it is said, adorned the tables successively of Alexander, Hannibal and Sulla: 'the only one of Lysippos' works which can be identified with certainty on external evidence'. By comparison the Eros with the Bow is pronounced Lysippic.

Dr Johnson's estimation of the Agias will to some seem too low. While possessing

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'some distinction, especially in the face', it was not by Lysippos, nor is it a copy of a work of his ; it is an original, and when Alexander saw it he 'felt sorry for (his friend) Daochos . . . and asked Lysippos to make a good statue to be set up at Pharsalos '. Hence the duplicate inscription at Pharsalos, which Dr Johnson, on what appear scanty grounds, argues was later, not earlier, than the one at Delphi. The Agias falls into line with the 'Philandridas Head' and the stele from the Ilissos, and so may well have emanated from an Attic source. The absence of statues which can be regarded as connecting links between the Agias (as an early work of Lysippos) and the Apoxyomenos preclude him from admitting the former work into the list of Lysippos' statues. The only possible link he knows is a head of Helios from Trianda now at Copenhagen.

This much has been necessary to make clear the writer's standpoint in regard to Lysippos' style ; considerations of space forbid a detailed account of the conclusions that he draws from it. By comparative methods he claims for Lysippos the Seilenos with the Infant Dionysos, the Meleager (though contamination of types has obscured the origin in some copies), and the Ny Carlsburg bearded head ; the Ganymede, too, relying upon the judgment of Amelung. To this list may be added the originals of the bust of Seleukos Nikanor, the Socrates of the Museo Nazionale type (with which he would indirectly connect the statuette recently acquired by the British Museum), and the bronze statuettes in Naples representing a mounted and a riderless horse which are supported upon rudders ; he considers the last to be after the monument made by Lysippos to commemorate the battle of the Granikos. Then we have his Herakles Epitrapezios and the Herakles of the Farnese type, and the Eros with the Bow. To these are to be added three copies of his portrait of Alexander, of which the Azaraherm type is the most faithful, and is best represented by the copy at Geneva, of which an illustration forms the frontispiece. A more doubtful candidate is the Medici Aphrodite, of which a supposed copy had an interesting history in 14th century Siena.

This sketch necessarily does scant justice to Dr Johnson's thorough-going examination of all possible or suggested candidates for Lysippic origin ; it can only indicate the main lines of the results of his enquiry. Lysippos emerges as an artist difficult to deal with, partly on account of the rarity of satisfactory copies in marble of works originally executed in bronze, or of works whose size or subject precluded accurate copying ; but who by his predilection for obscuring the torso by crossing it in various ways with the arms, broke away from the unilateral and instituted the multilateral tradition. Sculpture in the round, long in bondage to the traditions of an art originally ancillary to architecture, becomes free. Lysippos thus paves the way for the elaborate poses and groupings of the Hellenistic sculptors. His connexions are with the future, not the past.

The illustrations are of varying quality. We are grateful for one or two which have never appeared before, but in general they cannot be greatly commended, considering the price of the book. There is a collection of 96 passages from ancient authorities, with a parallel translation usually borrowed from standard sources, even to the extent of repeating the old-fashioned incorrect 'brass' for 'bronze'. This juxtaposition would cause confusion to those who relied solely on the English version. Where an original translation is provided, it is not always happy. Some misprints call for revision, notably on p. 55, apparently caused by the repetition of the same phrase at an interval of a few lines.

W. L. CUTTLE.

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